SOAP AND CHEMICAL SPECIALTIES

UGUST 1959

New "Aeromagic" spray starch of General Aerosols, Inc., Shelton, Conn., now being marketed successfully in several New England areas and Canada.

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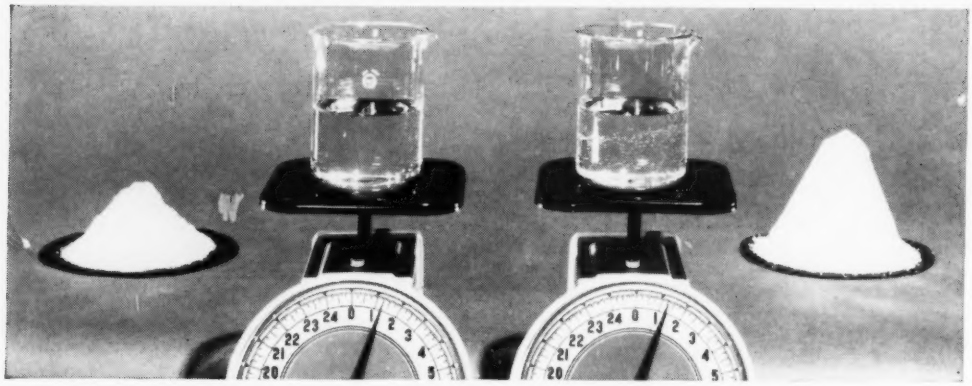
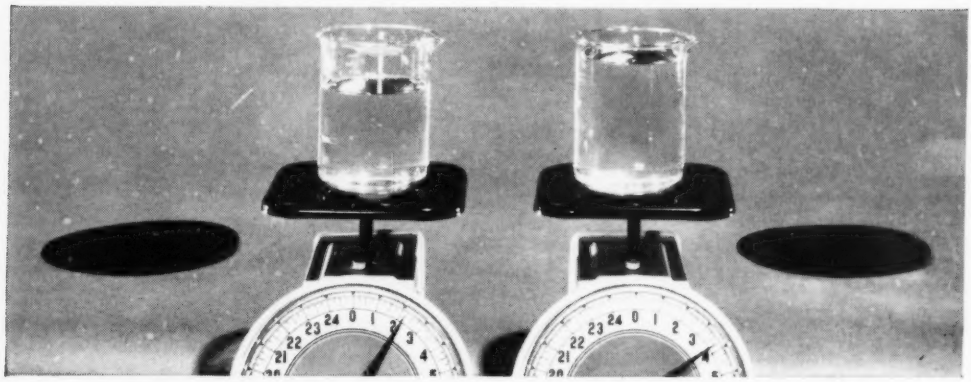


Before

Weight and temperature of water (68°F.) in each beaker is identical. But the two stacks of chemicals are different — *3 times more* potassium carbonate (right) than sodium carbonate (left).



After

adding each chemical to a beaker, both are completely dissolved. You can *see* the greater solubility of potassium carbonate in the higher fluid level and heavier weight of the righthand beaker. It has *3 times more* carbonate in solution than the other beaker containing sodium carbonate.

Get more carbonate in solution... more soluble reaction products with SOLVAY POTASSIUM CARBONATE

By switching from sodium carbonate (soda ash) to more soluble Solvay® Potassium Carbonate, you can save on handling, storage and packaging with more efficient, more concentrated solutions. You also get more highly soluble reaction products—for superior performance in many applications.

These features are important to consumers and manufacturers of liquid soaps and detergents; producers of special boiler and other cleaning compounds; chemical and textile processors.

You can obtain Solvay Potassium Carbonate in 3 handy forms—99-100% calcined, 83-85% hydrated and 47% liquid. Mail coupon for free sample and further information.

Sodium Nitrite • Calcium Chloride • Chlorine • Caustic Soda • Caustic Potash
Potassium Carbonate • Sodium Bicarbonate • Chloroform • Methyl Chloride
Soda Ash • Vinyl Chloride • Ammonium Chloride • Methylene Chloride • Carbon
Tetrachloride • Snowflake® Crystals • Monochlorobenzene • Ortho-dichlorobenzene
Para-dichlorobenzene • Ammonium Bicarbonate • Hydrogen Peroxide • Aluminum
Chloride • Cleaning Compounds • Mutual® Chromium Chemicals

Allied Chemical

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast.

SOLVAY PROCESS DIVISION DM-82
ALLIED CHEMICAL CORPORATION
61 Broadway, New York 6, N. Y.

Please send me:

- ☐ Working sample of Solvay Potassium Carbonate
- ☐ Solvay Potassium Carbonate Fact Book

Name _____

Position _____

Company _____

Phone _____

Address _____

City _____ Zone ____ State _____

She reflects, then selects, and she makes or she breaks the sales success of your lotion, deodorant, hand cream. On thoughtful reflection, you know what she wants.
So give her fine fragrances. Use good scents from Norda. Traditional skills are now being developed even more notably by Norda research in the quality that customer confidence comes from.
Norda makes good scents
Norda®
601 W. 26 St., New York 1, N. Y.
CHICAGO · LOS ANGELES · SAN FRANCISCO · TORONTO
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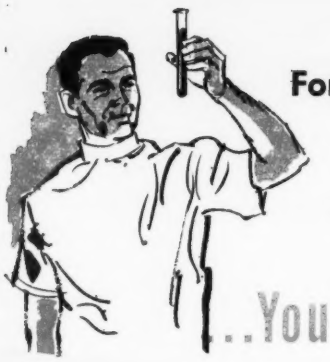

For private brand resale buyers of waxes and kindred products

..Your Quality Guide

WATER EMULSION WAXES

Each of Candy's floor waxes are all-around top quality for certain traffic conditions. They impart the finest protection and beauty to floors for which best suited.

CANDY'S SUPREME (standard)
BRIGHT BEAUTY®
CANDY'S SUPREME Special WR
SUPER CAND-DOX®
CAND-DOX® #CS
CANDI-WAX #6000

All Candy's products are available for private brand resale and are sold only through distributors except for experimental accounts in Chicago essential to research.

Beauty and Durability

Initial appearance is important, but for a waxed surface to remain beautiful, it must be durable. Durability depends not only on resistance to abrasion of traffic, but even more so on resistance to discoloring marks. Durability should be measured by how long the waxed surface maintains a nice appearance before complete removal and re-waxing is required.

Anti-Slip

Anti-slip, or reasonable safety underfoot, does not mean that the qualities of beauty and protection need be sacrificed. The proper balance—a wax film which is not excessively slippery, yet which is not tacky and does not collect dirt readily—gives the performance that answers the foremost original reason for use of a floor wax...beauty and protection.

Water Resistance

Frequent damp mopping or wet traffic can make water resistance very important. Over-doing this quality when no problem exists out of the ordinary, simply increases the difficulty of complete removal or applying multiple coats. Removability must be considered as important as water-resistance under most normal conditions.

Solid Content

The percentage of solid content is not nearly as important as the quality of the solids. Good quality indicates 12% of solids as the answer for most well planned maintenance programs. Two applications of 12% gives better results than one of 18%. "Washed out" floors and other special problems maintain better when more concentrated waxes are used. Over-waxing and resultant greater difficulty in removal for periodic maintenance may do more harm than good.

Carnauba Wax

The most important features of a good wax...all-around quality of performance...are built around Carnauba Wax. When refined and compounded with other additives and scientifically controlled in manufacture, Carnauba alone imparts the beauty and protection that makes the use of floor waxes both profitable and possible. Make-shift manufacture or over-emphasis on any one given wax feature should be avoided and proper care taken to provide for most satisfactory performance.

Other HIGHEST QUALITY products of CANDY & COMPANY, Inc.

CANDI-COAT 1000, WATER RESIN EMULSION

As a floor coating for use under specific conditions of continued maintenance on certain types of floors this water resin emulsion has none of the faults associated with coatings of this type. It is the finest product in its class produced up to this time.

Bright Beauty WAX REMOVER & all-purpose SURFACE CLEANER

For removal of water-emulsion waxes from any floor without harmful effects. It is the perfect maintenance program wax remover and all-purpose surface cleaner. Pleasant odor, crystal clear color and thorough cleaning action with all types of equipment. Unaffected by hard freezing. Furnished ready for resale or in concentrated form for local packaging...nothing but water to buy or mix in.

Bright Beauty CREAM FURNITURE POLISH

A cream furniture polish that spreads easily, polishes without excessive effort to a deep impressive lustre. Permits *repeated repolishing* with a dry cloth, thus saving many re-applications. A very economical polish of the very highest quality.

Bright Beauty PASTE WAX

Properly blended and refined from excellent quality solids and solvents that produce the best drying time and evaporation. Easy to handle, having "creamy" consistency and stability that lasts throughout storage and usage life.

Bright Beauty LIQUID (spirit) PREPARED WAXES

A complete line of spirit dissolved waxes that meet a wide variety of demands for durability, color and types of usages. Each acts as a "dry cleaner" to keep surfaces waxed protected with a superb coating necessary for many applications such as wood and certain other types of floors; for bars, wallpaper, etc.

Bright Beauty GLASS POLISH & CLEANER and SILVER POLISH

As a glass cleaner (pink color) it applies evenly with little effort, wipes off easily with negligible "powdering" and produces an undeniable "feel" of cleanliness to glass. As a cleaner of silver, it polishes to a high lustre *without* abrasion and can even correct the abuses of scratchy "quick-polish" inferior products.

Bright Beauty DANCE FLOOR WAX

Does not "ball-up" and gather dirt that impregnates floors with hard spots difficult to remove...free from dusty effects. Its protective quality adds more "floor-years" to expensive ballroom floors.

Bright Beauty Heavy Duty PASTE CLEANER

Cleans and *scours* more effectively and quicker than most scouring powders. Depending on application, it can clean to perfection even painted walls to provide a suitable repainting surface. 100% active, free from excessive abrasive qualities, it frees almost every surface from all foreign matter.

CONTAINER SILK SCREEN LABELING

Now you can have dramatic, colorful labeling of your private brand name on all 55, 35, 30, 20 & 15 *gal.* drums and 5 *gal.* pails. This added service is accomplished right in our plant...your inspection invited...or write for details.

Candy & Company, Inc.

EST. 1891

Wax Specialists for over 65 years

2515 W. 35th ST., CHICAGO 32

Volume XXXV, No. 8—August, 1959

Cover photo: "Aeromagic" push-button starch of General Aerosols, Inc., Shelton, Conn., is now being marketed in several New England areas. Packed in eight ounce American can, with two color, green and white paper label, starch is dispersed through a Risdon valve.

MEMBER

ABP

SINCE 1934

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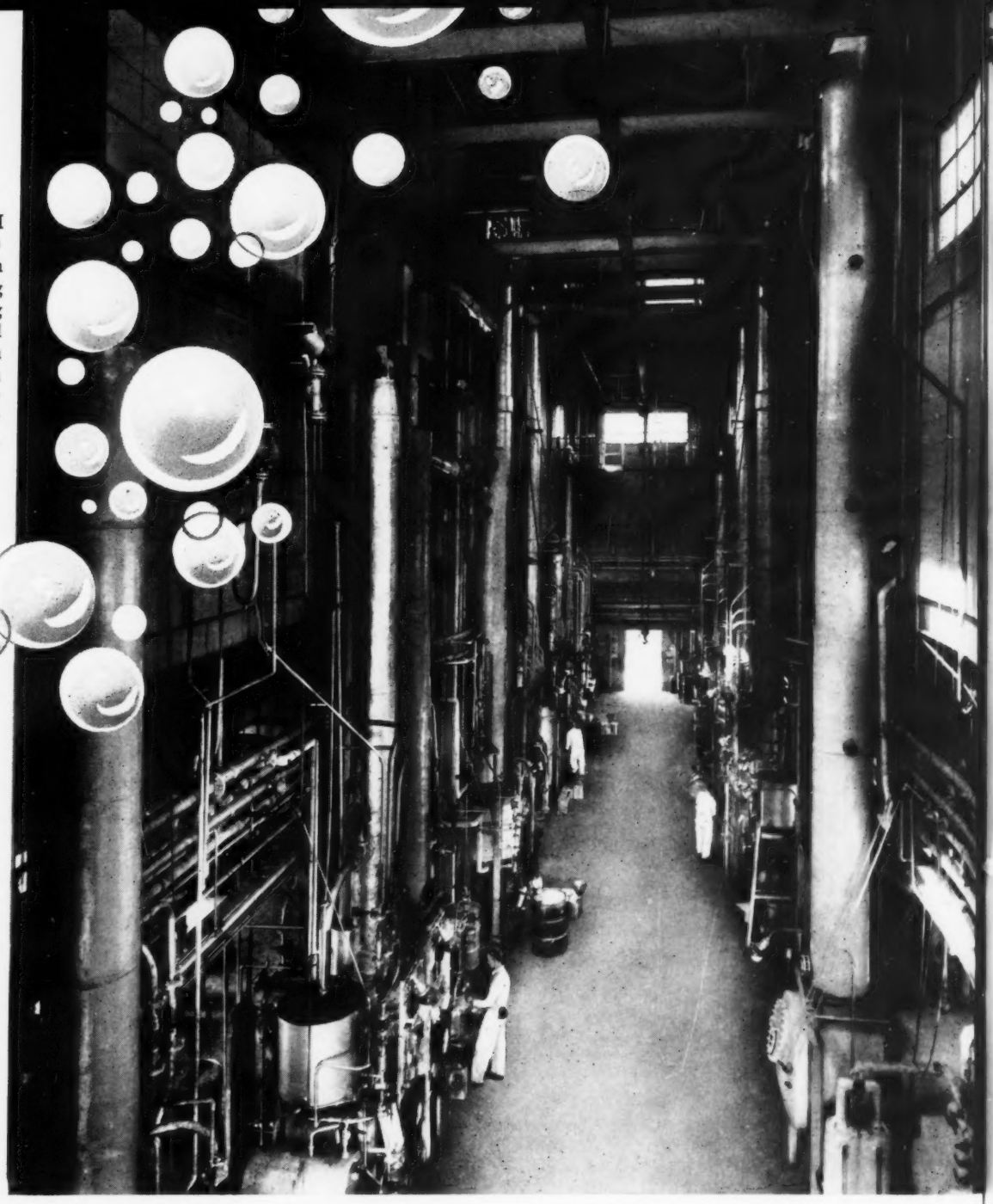
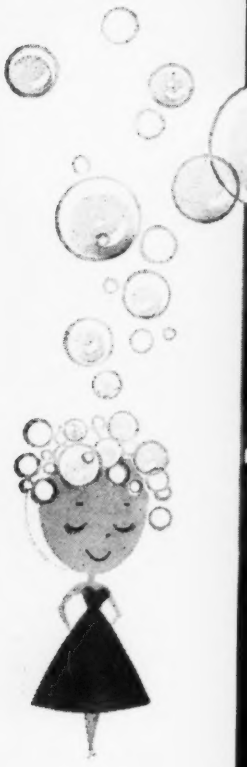
Distillation building (VAH Union Beach, N. J. plant) showing high column stainless steel fractionating equipment. Among numerous VAH technical developments, are new column packing techniques which have added considerably to the efficiency of many distillation processes.





Finer Fragrance **SELLS MORE SOAP**

Today's trend to upgrade the quality of perfume used in soaps, directly results in increased sales and greater brand loyalty. van Ameringen-Haebler, Inc. has contributed to the soap-maker's ability to achieve these results by the development, through constant research, of distinctly new and finer aromatics, through the production economies made possible by modern, large-scale processing equipment and up-to-date techniques ... and through the creation of lovelier soap fragrances by its staff of master perfumers.

van Ameringen-Haebler

A DIVISION OF INTERNATIONAL FLAVORS & FRAGRANCES INC.

521 West 57th Street · New York 19, New York

NINOL

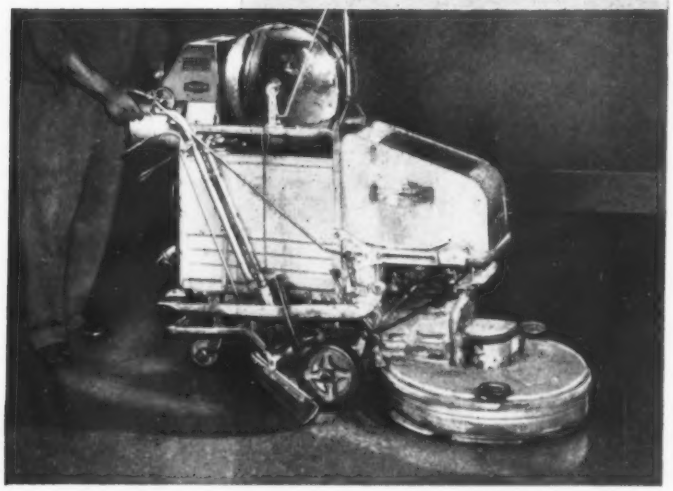
STEPAN CHEMICAL COMPANY

NINOL

NEW TYPE AMIDE

SOLUBILITY

IN HARD WATER AND MAXIMUM STABILITY



- SYNTHETIC LIQUID FLOOR CLEANERS
- WAX STRIPPERS
- ALKALI CLEANERS
- DETERGENT SANITIZERS

This Stepan product is a completely new and different type of fatty acid alkylolamide detergent derived from coconut oil. Among its distinctive advantages over the usual amides, Ninol 1301 offers the following: **HARD WATER CLARITY.** Clearly soluble in hard water. There is none of the usual haze or turbidity and this carries over to the formulated cleaners based on Ninol 1301. It is soluble in water at all concentrations. **COMPATIBILITY WITH QUATERNARIES.** Disinfectant cleaners can be formulated from Ninol 1301 and quats with excellent clarity and viscosity. **ALKALINE STABILITY.** Completely stable to boiling in alcoholic potash, making it possible to use Ninol 1301 in highly alkaline liquids. **COLOR.** In the very light yellow range, making it possible to dye formulations to any particular shade. **ACTIVITY.** Virtually 100% active, giving maximum detergency per pound. Write for samples, prices, literature.

STEPAN

427 W. Randolph St.
Chicago 6, Illinois
STate 2-4711

STEPAN CHEMICAL COMPANY
427 W. Randolph Street
Chicago 6, Illinois

Gentlemen: Please send me complete information, prices and a sample of NINOL 1301.

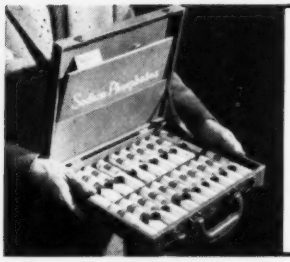
5-8

Name .....

Firm .....

Street Address .....

City ..... Zone ..... State .....



You get lowest-cost compounding flexibility with Monsanto detergent phosphates . . .

THE ONE "RIGHT" STP DENSITY FOR EACH PRODUCT YOU CAN MAKE

(SODIUM TRIPOLYPHOSPHATE)

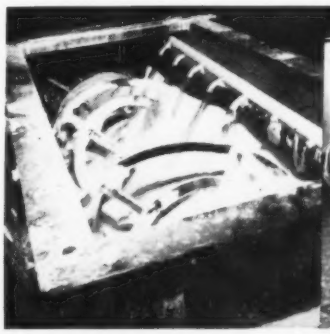
In your search for new and improved detergent products, take a new look at what Monsanto STP can do for you. From *three* STP densities, Monsanto can always deliver the one "right" density for *each* product you make . . . give you lowest-cost compounding flexibility to best meet every detergent-building need.

EXAMPLE: Monsanto's light-density STP gives you the faster solution rates you need at high concentrations or low temperatures. It will carry the most liquid active and still remain free-flowing. And because Monsanto's light-density STP stays granular and low dusting, it causes no irritation in the plant, resists caking and gives uniform bulk.

You get lowest cost when you make one-stop volume-discount purchases—and Monsanto gives you the opportunity to carry out one-stop purchasing most often. You can get any one STP density *or combination of densities* in mixed shipment with the widest variety of sodium and potassium phosphates available—as well as with a complete line of SANTOMERSE (anionic) and STEROX (nonionic) surface-active agents!

In bag, drum or carload, each density of Monsanto STP is immediately available from a plant, warehouse or service-minded distributor near you. For more information, use the convenient coupon.

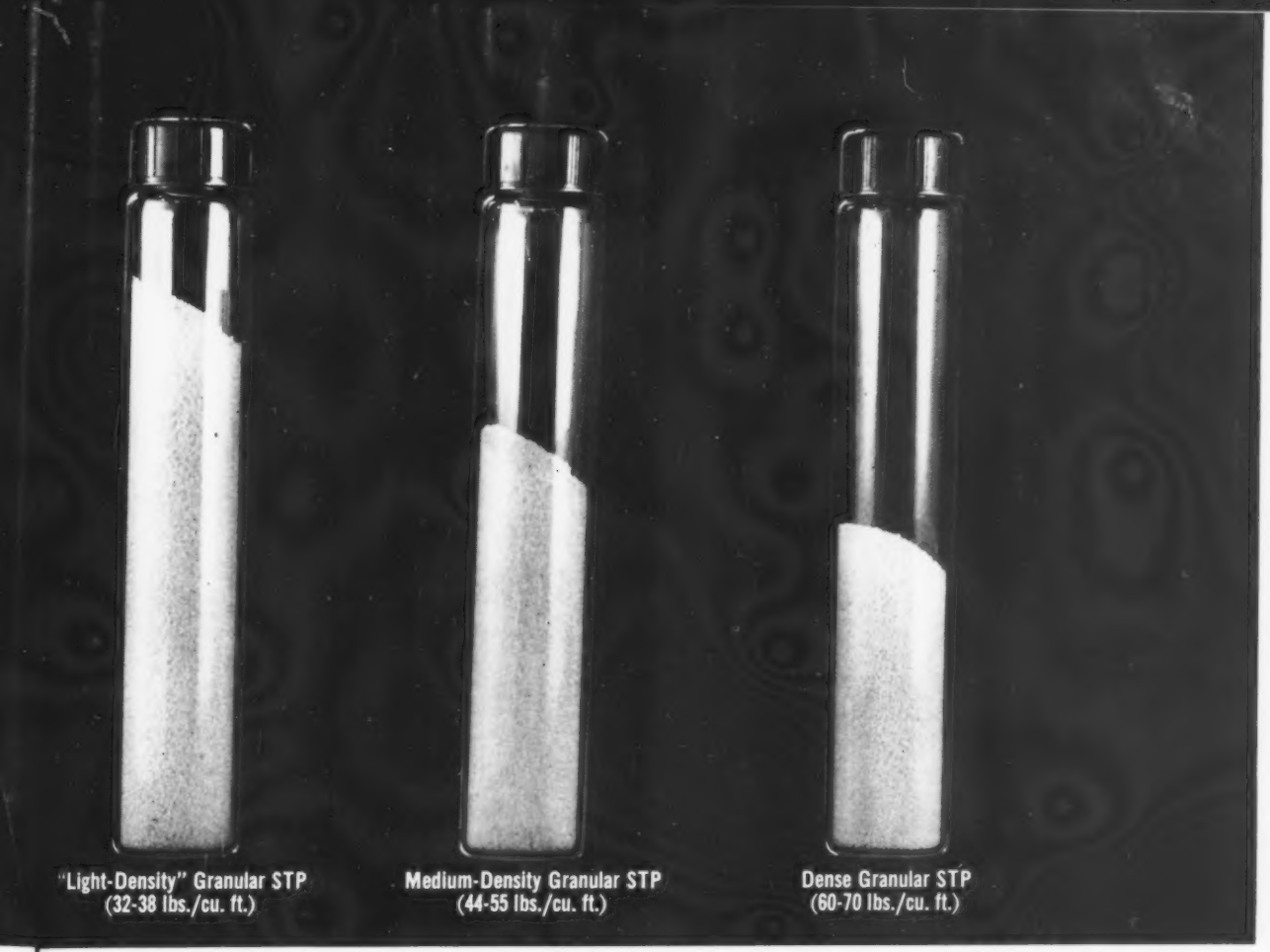
Santomerse, Sterox: Monsanto T.M.'s., Reg. U. S. Pat. Off.



For low-dusting granules that soak up liquid active

For free-flowing, fast-dissolving dry compound

With no bias in favor of any single STP density, Monsanto draws from broad, basic knowledge of all detergent phosphates to answer your specific compounding questions.



"Light-Density" Granular STP (32-38 lbs./cu. ft.)

Medium-Density Granular STP (44-55 lbs./cu. ft.)

Dense Granular STP (60-70 lbs./cu. ft.)

Vials contain exactly the same weight of STP

For greater liquid loading of your dry detergents, for faster dry detergent solution rates, for more bulk and low-dusting . . . specify Monsanto "*light-density*" STP.

For profitable repeat sales for your regular line, make Monsanto's *medium-density STP* your standard. You can always trust in highest quality and uniformity.

To cut packaging costs, you can decrease the bulk and container sizes for your industrial detergent compounds by specifying Monsanto *dense granular STP*.

Let this 36-page Guidebook or, better yet, a Monsanto representative give you more facts about industry's largest and most diversified line of phosphates. Just fill in the coupon.

FOR STP SAMPLES, GUIDEBOOK, PERSONAL SERVICE—USE COUPON

most profitable compound
bulk and package size

Monsanto

®

WHERE CREATIVE CHEMISTRY WORKS WONDERS FOR YOU

Monsanto Chemical Company
Inorganic Chemicals Division
Department 92, St. Louis 66, Missouri

I would like to have a:

☐ copy of Monsanto's 36-page Guidebook

8-oz. sample(s:) ☐ light-density STP ☐ medium-density STP ☐ high-density STP

☐ Monsanto representative contact me.

Name.....(Title).....

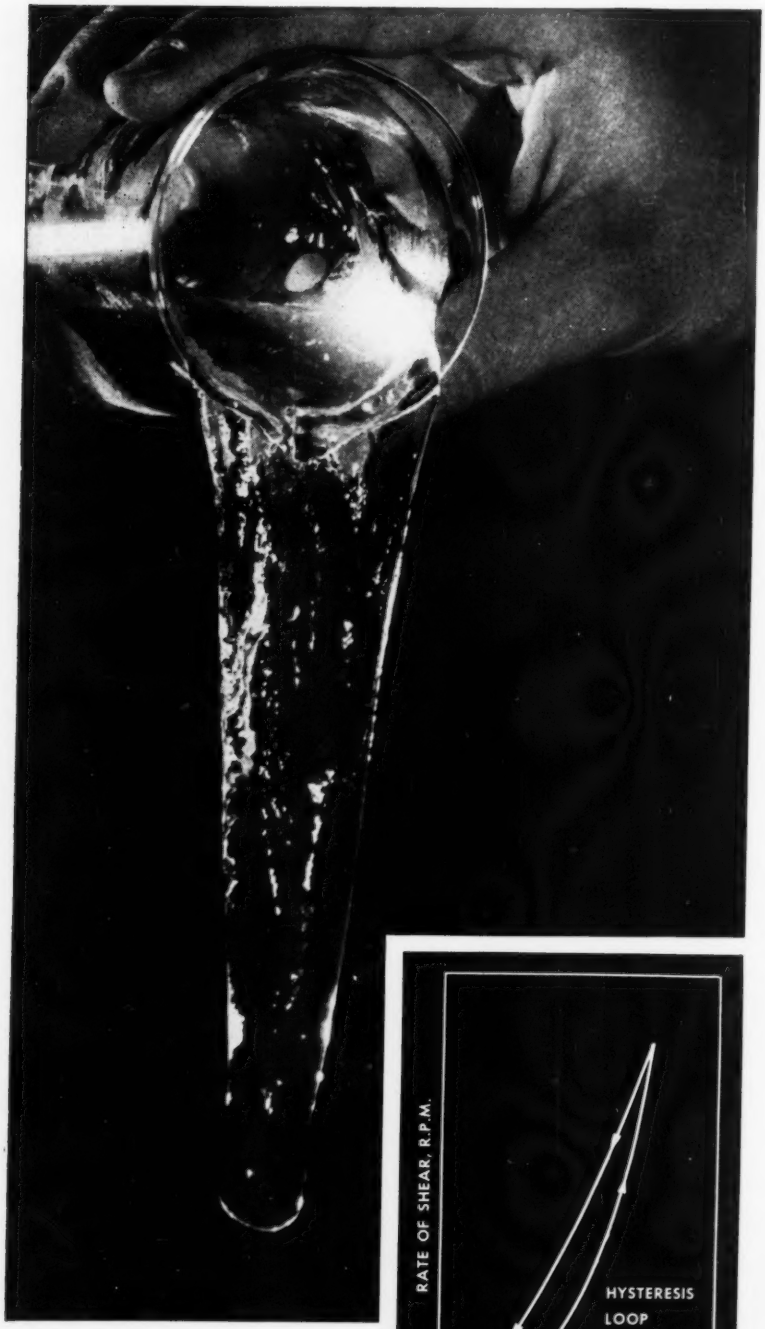
Company.....

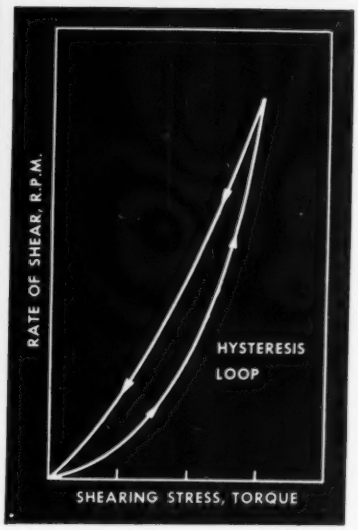
Address.....

City.....Zone.....State.....

The CMC Story

THE WIDEST RANGE





FROM ONE EXTREME...
This unretouched photo shows a thixotropic solution of CMC being poured. Rheogram traces characteristics of a thixotropic CMC-7H solution.

Hercules Has the

Starting with a laboratory curiosity —crude and nonuniform—a Hercules research and production team years ago developed the first commercial purified CMC — cellulose gum. Uniform and stable in price, cellulose gum immediately proved far superior to natural gums in a wide range of uses, and as a result has been in ever-increasing demand.

THIXOTROPIC—The first CMC to be made was a thixotropic material. A picture and graph of its solution characteristics are shown on the left. This property is important in many applications; for example, because it thickens on standing, it's ideal for suspending solids in calamine lotion, or pigments in water-based paints.

NOW NONTHIXOTROPIC, TOO —Advanced research and techniques have made it possible for Hercules to also supply nonthixotropic CMC

HERCULES

of CMC's on the market

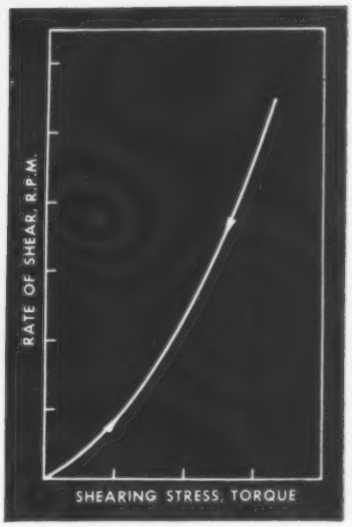
Right Grade For You

(solution properties and rheogram on right). This material yields a smooth, free-flowing solution which does not thicken on storage—important in such applications as cake icings and dietetic beverages.

FULL RANGE—Variations in rheological properties available in Hercules® CMC's provide just one example of the versatility of this water-soluble gum. If, however, you require a variation in viscosity, degree of substitution, particle size, or solubility, we have a grade of CMC to suit your needs.

TECHNICAL DATA AVAILABLE—Full technical data on CMC and assistance in evaluating its usefulness in your existing formulation is available from Hercules. Why not call on the experience Hercules can place at your disposal? For information on how Hercules can help, write:

Virginia Cellulose Department
HERCULES POWDER COMPANY
INCORPORATED
900 Market Street, Wilmington 99, Delaware



...TO THE OTHER
Nonthixotropic CMC solution pours like water. Rheogram illustrates characteristics of a nonthixotropic pseudoplastic CMC-7HS solution.

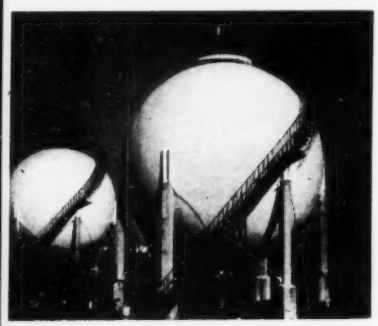
VC59-1

Why

JEFFERSON CHEMICAL'S

new improved

ETHYLENE OXIDE IS THE BEST*



***TIGHTEST**

Immediate deliveries of Jefferson's new ethylene oxide are available in any quantity, by tank car or drums of 400 pounds net.

ANALYTICAL LABORATORY REPORT
JEFFERSON CHEMICAL COMPANY, INC.
MAIN OFFICE: HOUSTON, TEXAS
CA 2-6353
ETHYLENE OXIDE
SALES SPECIFICATIONS
Water, wt.% . . . . . 0.03 max.
Aldehyde as acetaldehyde, wt.% . . . . . 0.010 max.
Acidity as acetic acid, wt.% . . . . . 0.002 max.
Non-volatile residue, gms./100 ml. . . . . 0.010 max.
Inorganic chlorides as Cl, ppm . . . . . Nil
Acetylene, wt.% . . . . . Nil
Color . . . . . Water-w
Residual odor . . . . . None
Appearance . . . Clear and substantially free from suspended matter.

SPECIFICATIONS IN THE INDUSTRY

New production facilities and techniques have enabled Jefferson Chemical to make significant improvements in ethylene oxide specifications. Here are some of the benefits you may expect from reactions with Jefferson's highest quality ethylene oxide.

- ✓ **Less water** minimizes the development of undesirable polyglycol-type by-products.
- ✓ **Lower aldehyde contents** improve product color—minimize the formation of ester-type derivatives.
- ✓ **Lowered acidity** in many instances provides increased reaction rates.
- ✓ **Less non-volatile residue** reduces haze effects.
- ✓ **Lower chlorides** result in better catalyst activity and less product color.
- ✓ **Nil acetylene** permits better reaction performance and adds a safety factor.

JEFFERSON CHEMICAL COMPANY, INC.

HOUSTON • NEW YORK • CHICAGO • CLEVELAND
CHARLOTTE • LOS ANGELES

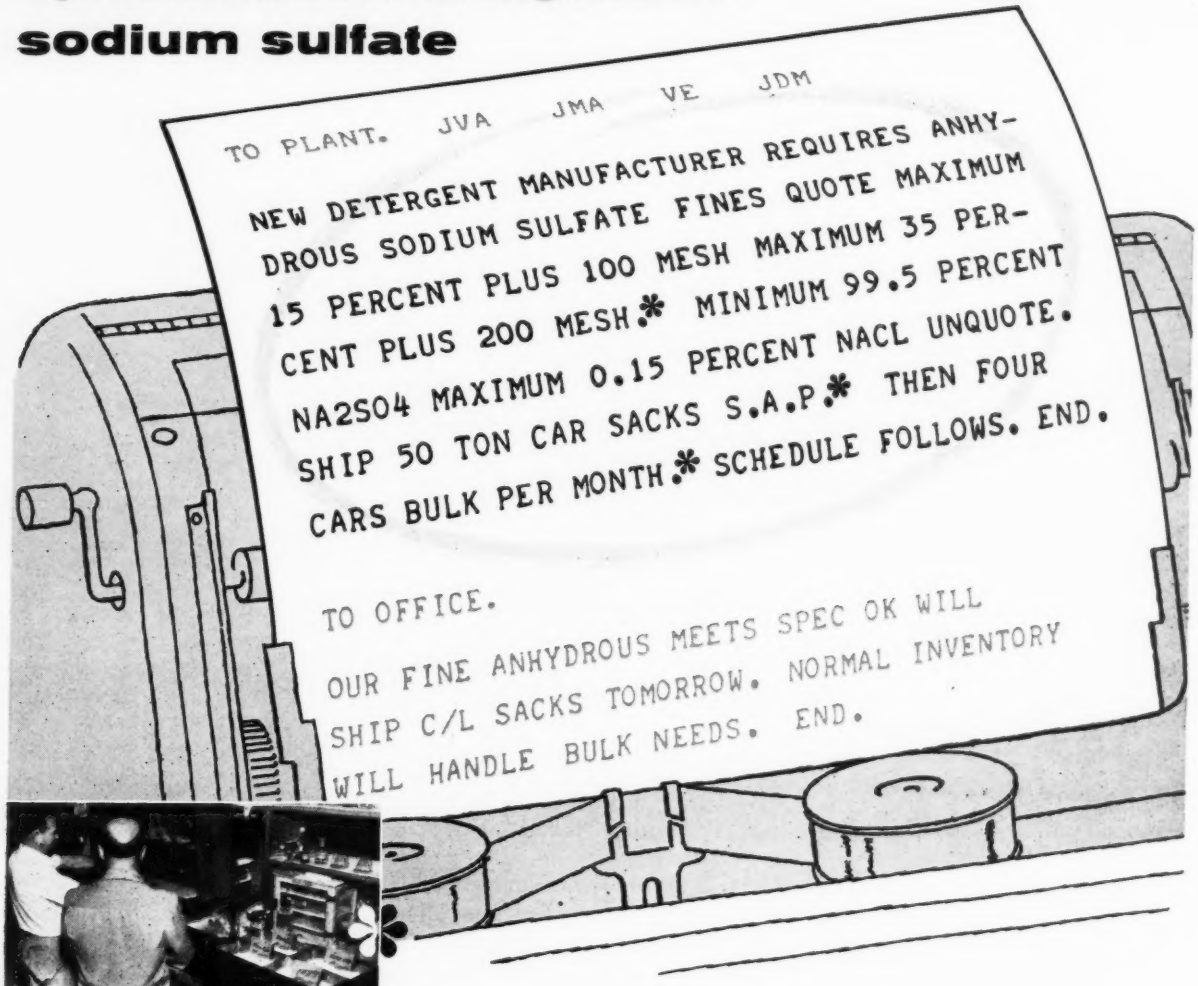
Ethylene and Propylene Oxides, Glycols, Dichlorides • Ethanolamines Morpholine • Piperazine • Polyethylene Glycols • Nonyl Phenol SURFONIC® Surface-Active Agents • Ethylene and Propylene Carbonates Caustic Potash • Caustic Soda • Soda Ash • Sodium Bicarbonate

Essential Chemicals From Hydrocarbon Sources

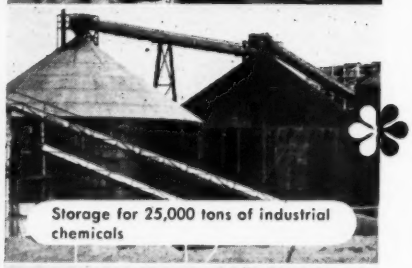
To make your own pilot plant or laboratory evaluation, you are urged to obtain a sample one-gallon or five-gallon cylinder of Jefferson's new highest quality ethylene oxide.

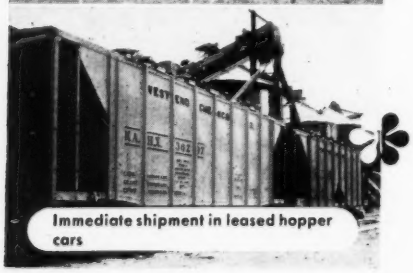
Send for a copy of Jefferson's 44-page technical bulletin, **Ethylene Oxide** . . . write to Jefferson Chemical Company, Inc., 1121 Walker Avenue, P. O. Box 303, Houston 1, Texas.

West End "fills the order" for special specification anhydrous sodium sulfate


TO PLANT. JVA JMA VE JDM
NEW DETERGENT MANUFACTURER REQUIRES ANHY-
DROUS SODIUM SULFATE FINES QUOTE MAXIMUM
15 PERCENT PLUS 100 MESH MAXIMUM 35 PER-
CENT PLUS 200 MESH* MINIMUM 99.5 PERCENT
NA2SO4 MAXIMUM 0.15 PERCENT NACL UNQUOTE.
SHIP 50 TON CAR SACKS S.A.P.* THEN FOUR
CARS BULK PER MONTH* SCHEDULE FOLLOWS. END.
TO OFFICE.
OUR FINE ANHYDROUS MEETS SPEC OK WILL
SHIP C/L SACKS TOMORROW. NORMAL INVENTORY
WILL HANDLE BULK NEEDS. END.

Constant control for uniformly high quality


Storage for 25,000 tons of industrial chemicals


Immediate shipment in leased hopper cars

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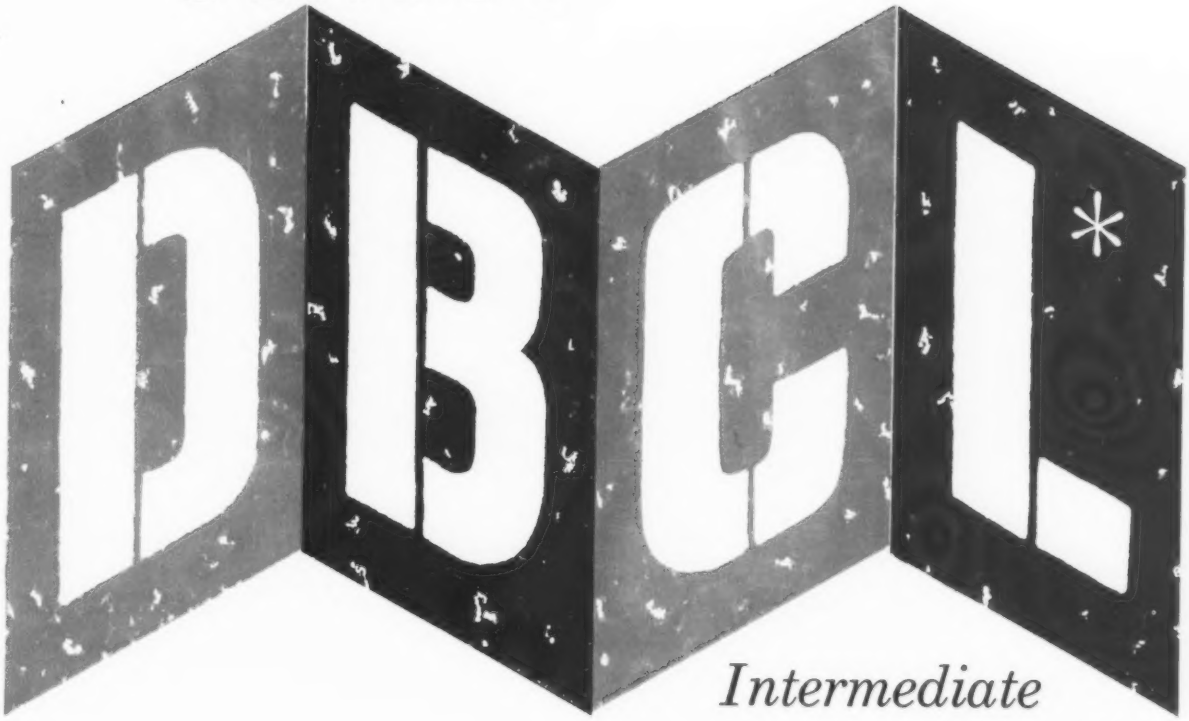

Intermediate
for cationic detergents
now available in
commercial quantities from
CONTINENTAL OIL COMPANY

***TYPICAL PHYSICAL PROPERTIES**

Specific Gravity at 60°F	0.965
Apparent Molecular Weight	292
Activity	Approx. 95%
Minimum Activity	90%
Flash Point (C.O.C.)	355°F.
Viscosity S.U.S. at 100°F	105
Pour Point	Less than −5°C.

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For chemicals with a head start on the future . . . count on CONOCO® !

CONOCO DBCL (dodecylbenzyl chloride, technical grade) reacts with tertiary amines to form cationic surface-active agents—known chemically as "quaternary ammonium salts." Quaternaries are used as the active ingredients in sanitizer preparations, as textile softeners, and as antistatic agents for fibers, plastics, and paper. Nonionic surface-active agents may also be made by reacting CONOCO DBCL with the appropriate polyglycol.

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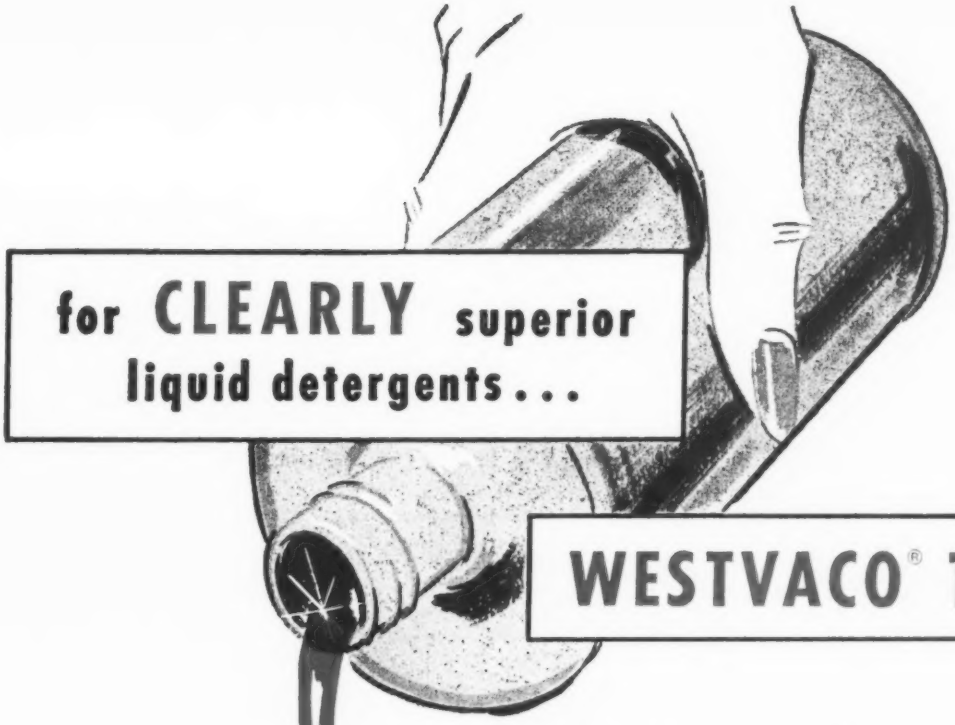

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LAUNDRY DETERGENTS!

DISHWASHING COMPOUNDS!

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POTASSIUM PHOSPHATES Dipotassium Phosphate Monopotassium Phosphate Potassium Tripolyphosphate Tetrapotassium Pyrophosphate Tripotassium Phosphate

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ALKANE

After Closing

Barton to White King

DeWitt Barton, former western district sales manager for Lever Brothers Co., New York, was

DeWitt Barton

named recently to the executive staff of White King Soap Co., Los Angeles, as manager of control brands marketing. Announcement of this appointment was made by Andrew K. Forthmann, president of White King.

Mr. Barton began his busines career after World War II as a salesman for Collway Colors Co., a subsidiary of General Aniline & Film Corp. He remained with the firm for three years before leaving to join Lever Brothers.

★

Lever Appoints Palmer

Charles E. Palmer has been named merchandising manager for the Pepsodent division of Lever Brothers Co., New York, it was announced last month by William T. French, division marketing vice-president. In his new post Mr. Palmer is responsible for the division's advertising and merchandising activities.

He joined the company's Pepsodent division in 1952 and later transferred to the Lever division. From 1956 until he rejoined Lever in 1958, Mr. Palmer was with A. S. Harrison & Co., South Norwalk, Conn., as marketing vice-president.

★

Rexall Buys IMCO

Acquisition of Injection Molding Co. (IMCO), Kansas City, Mo., manufacturer of plastic containers, by Rexall Drug and Chemical Co., Los Angeles, was announced recently. Justin Dart, Rexall president, said the purchase involved an undisclosed number of shares of Rexall stock.

★

CSMA Board Meeting

A two-day meeting of the board of governors of the Chemical Specialties Manufacturers Association will be held Sept. 15 and 16 at the Hotel St. Moritz, New York. In addition to the board meeting, there will be sessions of various CSMA committees. The general membership of the association is being invited to attend a luncheon and cocktail party on Sept. 15. Plans call for a report on conditions abroad by several CSMA members who have returned recently from visits to England and the European continent. Price of the luncheon and cocktail party has not been set as yet.

★

Edward Randa Dies

Edward Randa, manager of technical service for the soap division of Armour & Co., Chicago, died recently at his home in Riverside, Ill., after a long illness. His age was 59.

Mr. Randa joined Armour about 33 years ago and had been in the soap division for the past ten years. He was active in the AOCS, ASTM, and ACS and during World War II served in the fats and oils section of the U. S. War Production Board. He is survived by a son Edward, Jr.

CSMA Aerosol Clinic Programs Shape Up

TO provide basic and up-to-date technical information on all phases of pressure packaging for members of all industries concerned with aerosols is the primary objective of the first educational technical aerosol clinics to be held this fall. Sponsored by the Aerosol Division of the Chemical Specialties Manufacturers Association the clinics are scheduled for Saturday, Oct. 17, at the McAlpin Hotel, New York, and the following Saturday Oct. 24, at the LaSalle Hotel in Chicago. The program will be of special interest to junior executives, operators and technicians. The information offered will be helpful also to firms who contemplate entering the pressure packaging field, either as fillers or as marketers, and to students at colleges and universities currently offering aerosol courses.

Each clinic will be a one day affair, running from nine a.m. to five p.m. Subjects to be covered include the history and growth of the aerosol field; aerosol principles; propellants; containers; valves; laboratory equipment and techniques; formulation problems and commercial filling methods and problems encountered in this field. Each of these subjects will be dealt with by one or more technical experts who are actively engaged in pressure packaging.

Several of the main speakers have already been scheduled, according to E. J. McKernan, chairman of the CSMA Aerosol Division, who made the announcement. Dr. Francis A. Mina of Lodes Aerosol Consultants, Inc., New York, will discuss aerosol principles. Propellants will be reviewed by Lloyd T. Fanner, head of the "Genetron" aerosol technical service laboratory of General Chemical Division, Allied Chemical Corp., New York. Walter C. Beard, man-

ager of the aerosol division of Risdon Manufacturing Co., Naugatuck, Conn., will speak on valves. John J. Buchanan, chief of the aerosol development section, Continental Can Co., Chicago, will cover the subject of containers.

Panels of experts to be drawn from the technical staffs of contract fillers and/or marketers in the east and midwest will discuss the subjects of formulation problems and of commercial filling methods and problems. Their names and those of other speakers will be announced shortly, according to Mr. McKernan.

The clinics are being arranged by the Program Committee of the CSMA Aerosol Division of which J. J. Tomlinson, General Chemical Division, Allied Chemical Corp., New York, is chairman. Scheduling of speakers and detailed arrangements for both clinics is the responsibility of a special subcommittee headed by A. W. Lawrence of the Freon Products Division, E. I. du Pont de Nemours & Co., Wilmington, Del.

—★—

Revlon Sales at Record

Sales and earnings for the first six months of this year for Revlon, Inc., New York, were recently reported as the highest for a first half in the company's 27 year history. Net sales were $58,157,000, an increase of 10.7 per cent over the $52,522,000 reported in the first half of 1958. Net earnings amounted to $4,908,000, or $1.90 per share, compared with $4,615,000, or $1.73 per share for the corresponding period last year.

—★—

New Plant for Activated

Activated Chemicals & Products Co. moved early this month into a new manufacturing plant and general offices at 110 West Ash Ave., Burbank, Calif. Previously the company was located in Los Angeles at 4610 Hollywood Blvd. Activated distributes "Sea-Cal" and "Sea-Chem" enzyme products for treatment of sewage and industrial wastes.

Enjay Elects Dix VP

Robert K. Dix was elected a vice-president of Enjay Co., New York, petrochemical marketer, last

Robert K. Dix

month. He succeeds H. J. Rose who recently resigned to become a vice-president of Esso Export Corp., international marketing affiliate of Standard Oil Co. (N. J.).

Formerly assistant general manager of the Esso Standard refinery in Baton Rouge, La., Mr. Dix now heads Enjay's products management department which includes the butyl, plastics, chemicals, and additives divisions, and the Enjay Laboratories in Linden, N. J.

—★—

Easy Tire Cleaning

A new white sidewall tire cleaner claimed to require no scrubbing has just been introduced by Las-Stik Manufacturing Co., Hamilton, O. Compounded from "Tergitol" (Union Carbide Chemicals Co.) surfactants and glycol ethers "Las-Stik" is said to accomplish soil removal when applied by mere wiping.

—★—

Verley Elects Morgan VP

The election of C. Franl Morgan as executive vice-president and the appointment of Raymond Strobl as sales manager of Albert Verley & Co., Linden, N. J., were announced last month by E. J. Strobl, president.

Mr. Morgan has been with Verley for the past five years as controller and treasurer. Mr. Raymond Strobl is also secretary of the company and has been with the firm for 10 years. Verley is a processor of essential oils and aromatic chemicals.

—★—

W. B. Johnson Dies

William B. Johnson, 84, a director of the Colgate-Palmolive Co. until April of this year, died Sunday, July 19, at his daughter's home in Scottsdale, Ariz. Mr. Johnson was born in 1875, the son of Burdette J. Johnson, founder of the B. J. Johnson Soap Co. which became the Palmolive Co. in 1917. Secretary and director of Palmolive until 1928, Mr. Johnson then became a director of Colgate-Palmolive-Peet Co. He was an active member of Colgate's board until April 1959.

Mr. Johnson is survived by a daughter, Mrs. Jack B. Huntress of Scottsdale, and a son, Norman B. Johnson, of Riverside, Conn.

—★—

Brillo to Pay Dividend

Brillo Manufacturing Co., Brooklyn, N. Y., voted a 25 cent quarterly dividend late last month payable Oct. 1st on its new common stock. The new dividend rate is equal to 75 cents on the company's old stock which was split three for one in June. Prior to the split, 60 cents was paid.

—★—

New Calgon Bulletin

A new bulletin recently issued by Calgon Co., Hagan Building, Pittsburgh 30, Pa., describes its new mechanical washing compound called "Hi-Level" which has been formulated for cleaning heavily soiled dishware in soft or moderately soft water. A combination of moderately caustic, alkaline detergents and polyphosphate water conditioner, the product is said to be economical to use and to provide fast washing action. Eight ounces of the compound are reported to be enough for 25 gallons of water with the addition of a few ounces at regular intervals to keep the solution at full strength.

CSMA Lists Three Dec. Meeting Speakers

THE names of three speakers from outside the chemical specialties industry who have agreed to address the 46th annual meeting of the Chemical Specialties Manufacturers Assn., at the Hotel Mayflower, Washington, D. C., Dec. 7-9 were announced last month by H. W. Hamilton, secretary of the association.

David W. Kendall, former partner in the Washington, D. C., law firm of Cummings, Sellers, Reeves and Conner, and now a legal adviser and assistant to President Eisenhower, will speak at one of the two group luncheons. Also slated to address the convention are Dr. Kenneth McFarland, director of education for General Motors, and Cameron Hawley, a professional speaker.

George Rodewald of St. Louis, believed to be the originator of so-called "self-polishing" floor waxes, will be a guest of honor at one of the group luncheons. Mr. Rodewald's presence is part of the celebration of the 30th anniversary of the development of water emulsion floor waxes.

Winning packages in the annual CSMA aerosol packaging competition will be announced and on display during the meeting.

The 1959 Achievement Award will also be presented to the person who in the opinion of the committee has done the most for the chemical specialties industry.

Several of the six divisions of which CSMA is composed will have symposiums as part of their regular discussion sessions. Those announced so far include the Aerosol Division which will have a panel discussion of all phases of marketing of pressure packages. Subjects tentatively listed for discussion include: direct sales, sales through syndicate stores, introducing new products, and how to build aerosol sales through better packaging.

The renamed Detergent and Cleaning Compounds Division, (formerly Soap, Detergents and Sanitary Chemical Products Division) has slated a symposium on the subject of "Time—How to Make the Most of It" for one of its sessions.

A symposium on non-agricultural insecticide spraying and a panel on insect resistance will be among the highlights of the program for the Insecticide Division.

The election of officers and members of the board of governors will also take place at the annual meeting in December in Washington.

—★—

Armstrong Price Discount

A discount of 50 cents in the wholesale price of its "Linogloss" floor wax was offered to dealers up to July 31st by Armstrong Cork Co., Lancaster, Pa. Retail price of the product is between $3.75 and $4.00 per gallon. The discount was part of the company's "Floor Wax Festival" promotion aimed at boosting sales of its products this summer.

—★—

Mark on Western Board

Professor Herman F. Mark, an authority on polymers, has been elected to the board of directors of Western Petrochemical Corp., New York, it was announced late last month by Maurycy Bloch, president. Director of the Polymer Research Institute of the Polytechnic Institute of Brooklyn, Professor Mark is also a consultant to a number of large corporations including du Pont, Standard Oil of Indiana, Shell Development Co. and General Motors, as well as Western Petrochemical.

Herman F. Mark

—★—

Wallerstein Names Two

H. G. Hinck has been advanced to senior vice-president and Walter L. Van Norstrand has been appointed vice-president – production for Wallerstein Co., Staten Island, N. Y., a division of Baxter Laboratories, Inc., Morton Grove, Ill. The company manufactures industrial enzymes, chemicals, and antibiotics.

Mr. Hinck joined the firm in 1937 and continues in his previous position of secretary-treasurer. Most recently plant manager, Mr. Van Nostrand has been with Wallerstein for about 35 years.

—★—

FTC Charges T-H Chemical

Thompson-Hayward Chemical Co., Kansas City, Mo., was charged by the Federal Trade Commission last month with illegally lessening competition "by selling its liquid laundry bleach at lower prices in one market area than in another." Thompson-Hayward has a bleach plant in Kansas City and another in Dallas, Tex. Soon after the Dallas plant opened in 1954, the FTC complaint states, the company began selling bleach in that area for 25 cents a gallon in five gallon crates and later cut the price to 20 cents. Meanwhile, it maintained prices in the Kansas City area at 40, 50, or 75 cents per gallon depending upon quantity purchased. The complaint charges that these different prices have caused competing sellers of bleach in the Dallas-Fort Worth area to suffer a serious loss of business in violation of section 2(a) of the Robinson-Patman Amendment to the Clayton Act. The company was granted 30 days in which to file an answer to the complaint.

Multi-Meter Names Surratt

Stanley C. Surratt has been appointed director of research and development for Multi-Meter

Stanley C. Surratt

Corp., Toledo, O., it was announced recently by L. C. Van Nest, president. In his new position, Mr. Surratt is responsible for the development of new products used for dispensing bulk liquids. For the past nine years he was assistant to the chief engineer of Surfact Combustion Co.

★

Roy Worthy Dies

Roy B. Worthy, 68, former president of the old Mathieson Chemical Corp., now part of Olin Mathieson Chemical Corp., New York, died July 26th after a heart attack at his home in Saltville, Va. Mr. Worthy joined the then Mathieson Alkali Works in 1925 as an assistant engineer for its Saltville plants and later became manager of the plants. After further advancements he was named president of the company's industrial chemicals division. He also had been a consultant for Olin Mathieson.

★

"Prestone" Price Reduced

A new fair trade minimum price of $2.39 per gallon for its "Prestone" anti-freeze was established recently by National Carbon Co., division of Union Carbide Corp., New York. Previously the price was $3.25 per gallon which National Carbon has retained as a suggested retail price.

The price reduction, according to the company, is part of the "Prestone" marketing program for this fall which is taking into account the preference of many car owners to install their anti-freeze themselves. By establishing an area of flexibility between fair trade and suggested prices, National Carbon states it is enabling each of its dealers to set a price geared to his community such as an "over the counter" price for the "do it yourself" customer; a price that includes installation service; or a price for the product with installation charge added.

★

Labeling Hearings in Aug.

Hearings are scheduled to be held by mid-August on so-called hazardous substances labeling bills, it was learned early this month. Public hearings before the Senate Interstate Commerce Committee will take up Senate Bill 1283 sponsored by Senator Warren Magnus of Washington. The Food & Drug Administration's view of the bill will be revealed at the hearings.

No date has been set as yet for hearings on a similar House bill, H.R. 7352.

The senate bill, which has the backing of industry groups, and with minor differences, the American Medical Association, as it presently stands exempts foods, cosmetics and toiletries, which are regulated by the Food and Drug Administration. FDA, it is understood, would like some sort of control over labeling, and may ask for some change in the Federal Food, Drug & Cosmetic Act to achieve what the hazardous substances labeling bill does for chemicals and chemical specialties. This may slow up bringing the bill to an early vote.

★

New Fritzsche Price List

The latest price list which is published semi-annually by Fritzsche Brothers, Inc., 76 Ninth Ave., New York 11, is now available from the company for wholesale purchasers. The 11-page booklet lists quantities and prices.

Kapp Attends Oil Congress

Ira B. Kapp, technical director of Felton Chemical Co., Brooklyn, N. Y., attended the Second

Ira B. Kapp

International Congress of Essential Oils which was held July 22-25 in Grasse, France. He was accompanied by Leon Gelen, general manager of the company's Versailles branch. Leading authorities in the essential oils and perfumery industries spoke at the Congress, which was attended by producers in those industries.

★

Biddle Sawyer Agent

Biddle Sawyer Corp., 20 Vesey St., New York 7, was named early last month as the exclusive sales representative in the United States for the Societe Cooperative des Produits Agricoles (Socopa), Goma, Belgian Congo, for their sales of pyrethrum extract. Meanwhile, Balfour, Guthrie & Co., Ltd., 72 Wall St., New York, which was exclusive representative for administrative services for Socopa, continues in that capacity for the Pyrethrum Board of Kenya. PBK maintains its own sales representation in the United States.

According to W. Chaykin, president of Biddle Sawyer, Socopa's sales policy remains the same and all of the pyrethrum extract exported to this country from the Belgian Congo will be from a newly constructed extraction plant there.

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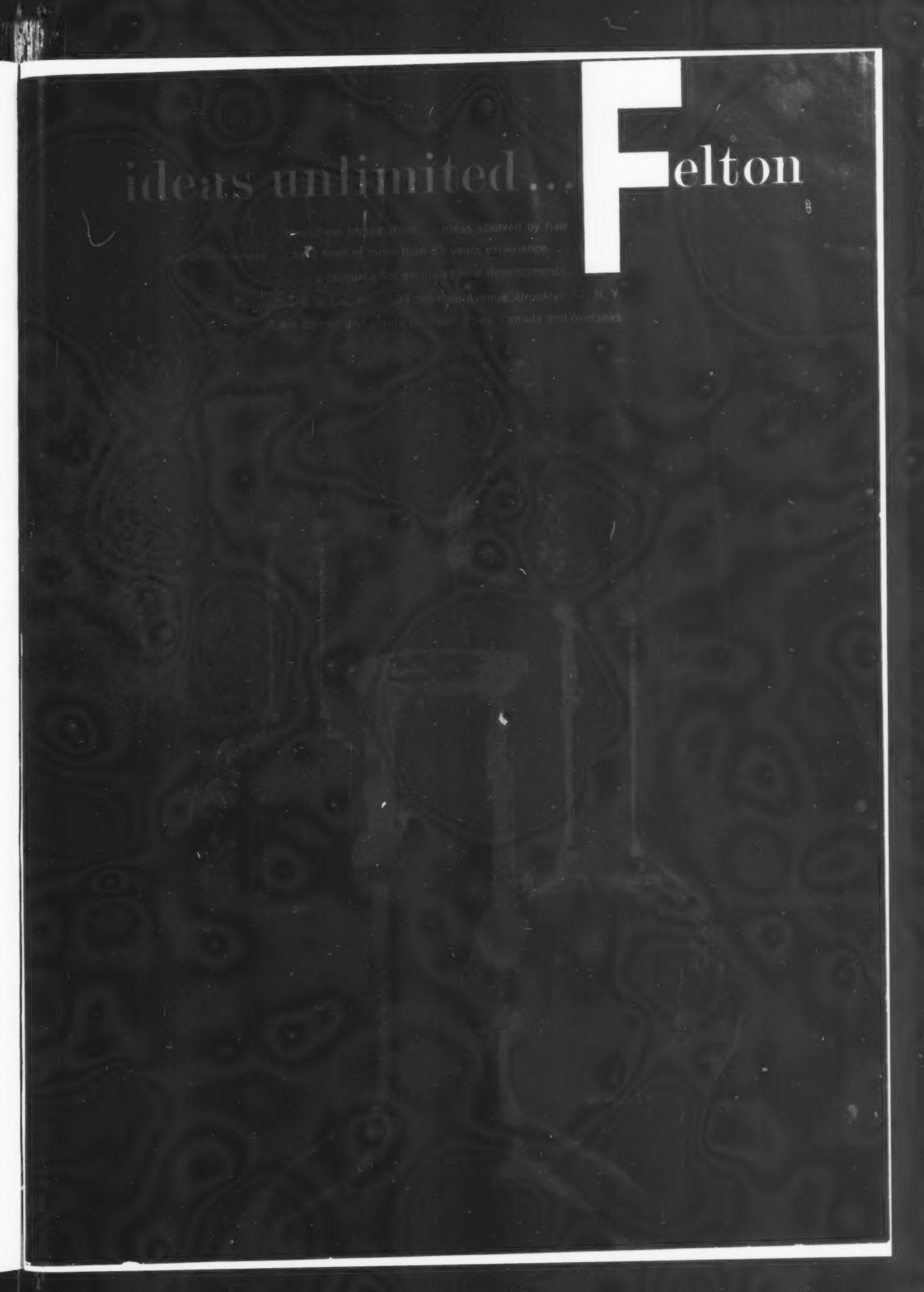

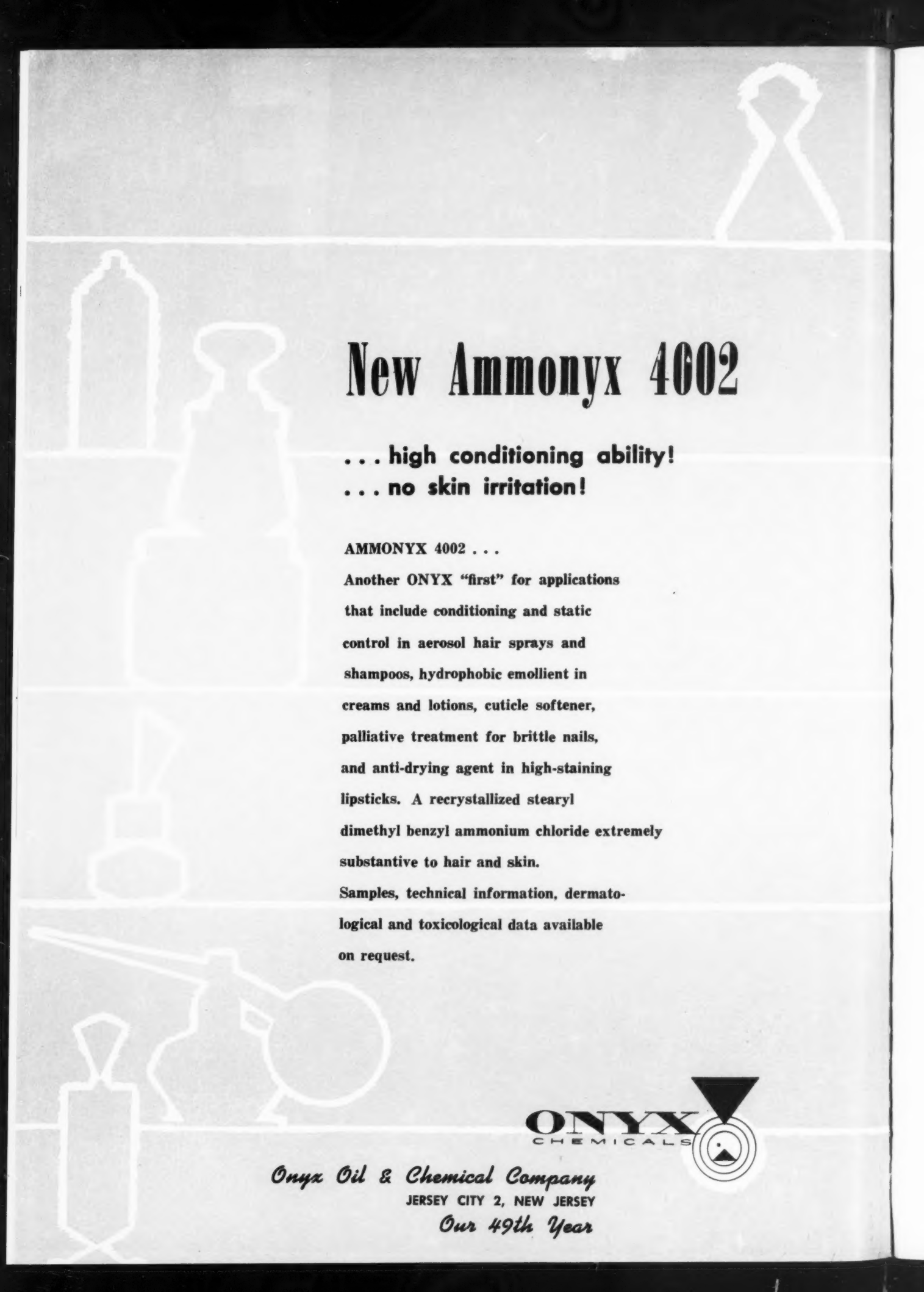

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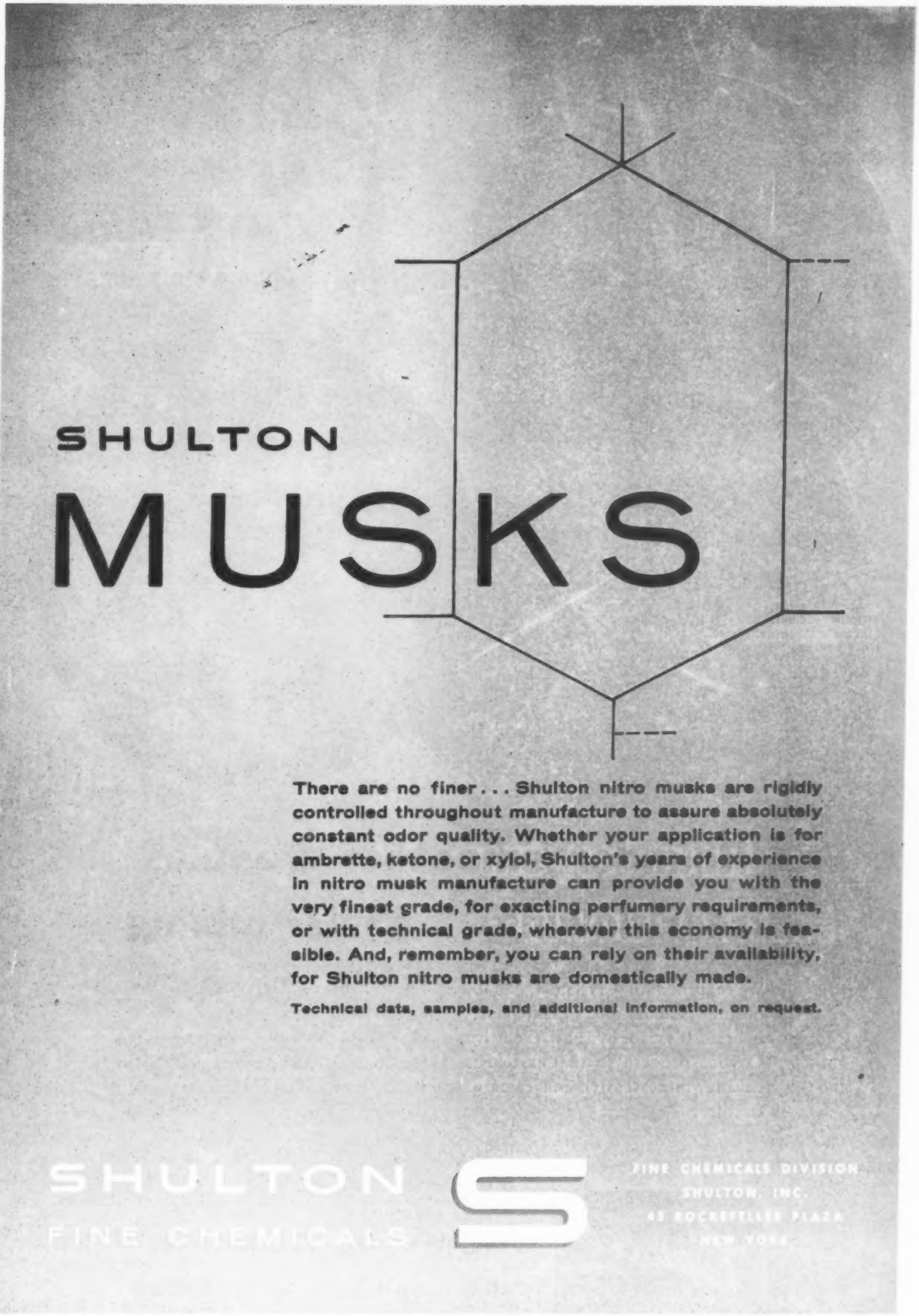
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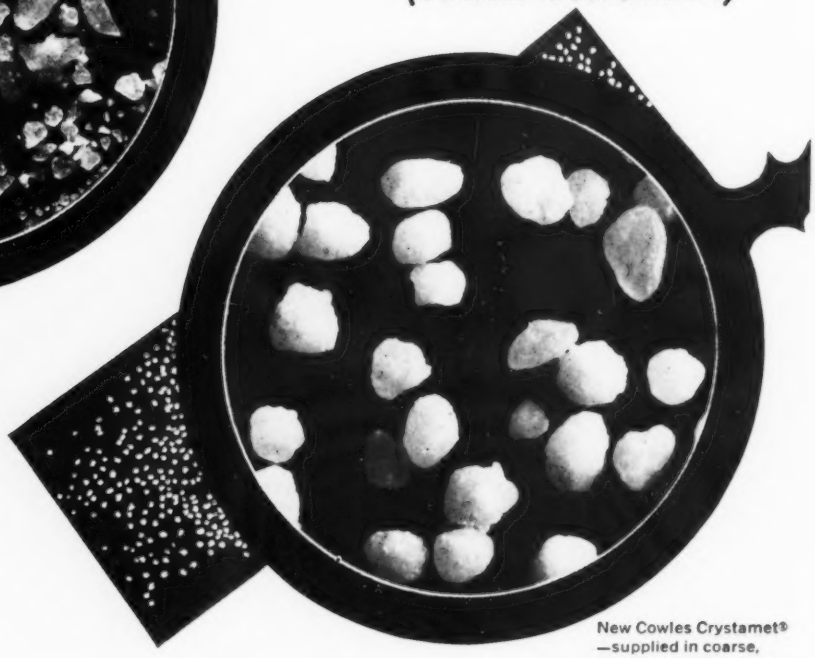

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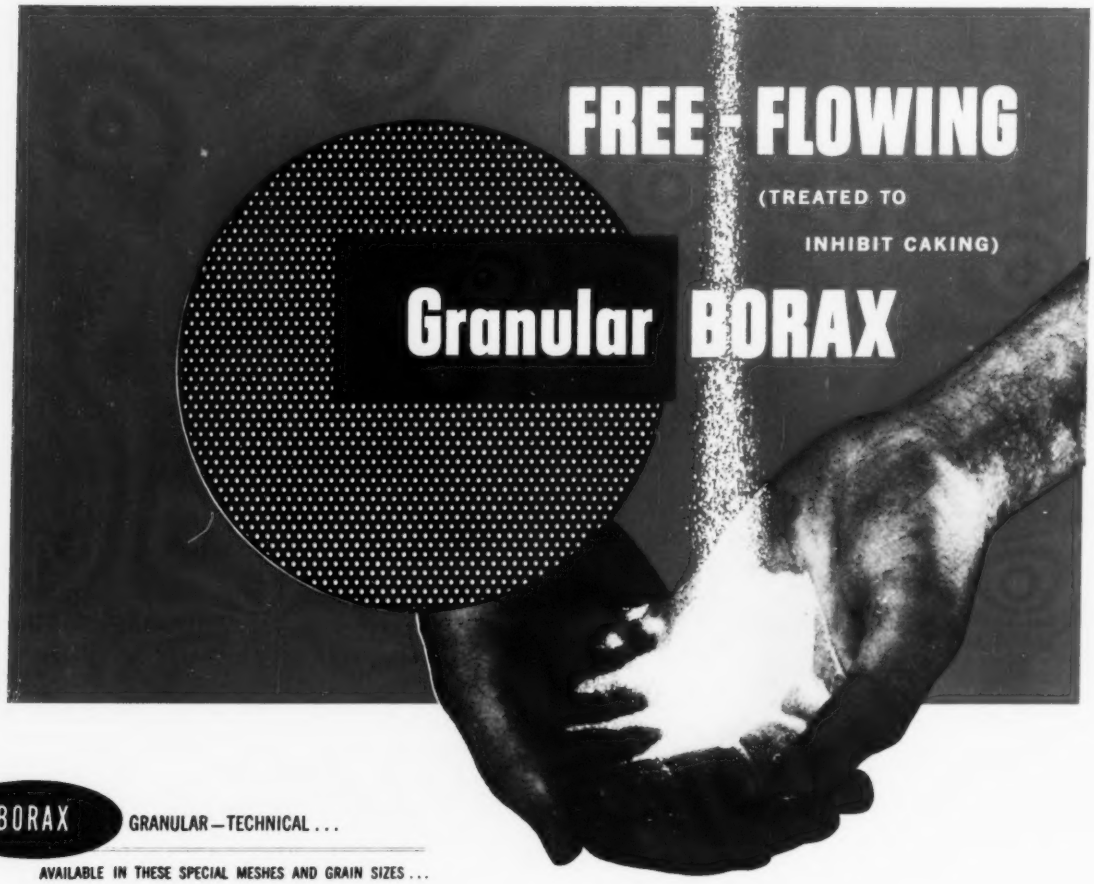

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Granular 8/60 (Special Mesh)	+ 8 + 60	Nil 80.0%	+ 8 +100	none min. 90%
Granular 30/60 (Special Mesh)	+ 30 + 60	0.5% 69.8%	+ 30 +100	max. 1% min. 80%
Granular 30/70 (Special Mesh)	+ 30 + 70	0.3% 71.8%	+ 30 + 40	max. 1% max. 20%
Granular 30/80 (Special Mesh)	+ 30 + 80	0.8% 76.6%	+ 30	max. 1%
Granular 30/100 (Special Mesh)	+ 30 +100	Nil 86.7%	+ 35 +100	none min. 85%
Granular 40/100 (Special Mesh)	+ 40 +100	Nil 89.0%	+ 40 +100	max. 0.5% min. 88%
Granular 40/140 (Special Mesh)	+ 40 +140	0.1% 88.8%	+ 35 +100	none min. 50%
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Powdered Hand Soaps are better performers when borax is part of their make-up. They work better in any water — cut grease quicker — and feel smoother. Our granular borax is free-flowing and 100% soluble. This material is now available to you in any of the many special uniform meshes listed at left. Samples, bulletins, or technical advice can be obtained from the sales office nearest to you. Write today!

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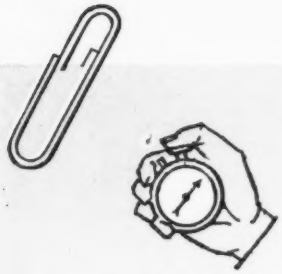

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Sequestration: In hard water Sodium Tripoly Phosphate forms soluble complexes, which are non-reactive, with certain hardness elements. Complexes with iron are colorless. Tripoly also dissolves hardness precipitants already formed.

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Synergism: When Tripoly is used as a builder with synthetic detergents or soaps, the resultant detergency is greater than the combined effect of these items acting independently. Tripoly puts the detergent to work immediately instead of wearing itself out in curd formation. For further information write for our data sheet and/or test sample.

. . . in brief

as the editor sees it . . .

COUPONS . . . . Couponing has become big business, so much so in fact that Paul Willis, perennial president of the Grocery Manufacturers of America, recently suggested the setting up of coupon clearing houses just like the banks have for checks. He pointed out that grocery manufacturers,—and we presume that he means soapers also,—issue some ten billion coupons a year with a potential redemption value of one billion dollars.

He went on to say, "Coupons are popular all along the line. They add substantially to the amount of money available to the homemaker for buying groceries. They build store traffic for the retailer. And manufacturers like them because they are effective in the promotion of new products or established products with new features."

Well, we honestly doubt that retailers like coupons. We think they prefer money. And we question that coupons build store traffic. The housewife would go there anyway. And we know that coupons are abused,—redeemed for cash or merchandise other than that specified on the coupon. But nevertheless, it looks like they are here to stay for a while, so why should we bat our thick head against a stonewall? Probably, the clearing house plan would be a good idea especially if it would reduce the million details which now fall in the lap of the manufacturer.

* * * * *

DETERGENT BARS . . . . In spite of some shortcomings which have previously been noted, the sale of detergent toilet bars continues to mount. Slowly but surely, they are creeping ahead, taking each year a larger share of the toilet soap market. In 1957, the synthetic bars had only 4 per cent of the toilet soap market. In 1958, this figure rose to 12 per cent. So far this year, they are selling at about 16 per cent of the market and reportedly rising rapidly.

There were many "bugs" to be worked out in producing a satisfactory synthetic toilet bar. We must admit that some of the early ones were far from good. But each year has brought better products. The improved products plus an increase in advertising pressure finds the public reacting as might be expected, buying more. In some areas of the country blessed with soft water, the going in competition with conventional toilet soap may continue tough. That is unless prices are strictly competitive which heretofore has not been the case.

Practically within a decade, synthetic detergents for clothes and dishwashing took over 75 per cent of the market. The present upsurge in sales of synthetic toilet bars may be the beginning of a similar market movement. Maybe the technical men who some years ago predicted that all soaps, including toilet soap, were doomed, may be right. In the light of recent happenings, who's to say no?

* * * * *

LIABILITY . . . . With the wider public consciousness of precautionary labeling and laws for its regulation, and a consequent sharpened consciousness of potential product liability, we have a hunch that manufacturers can look forward to a marked increase in law suits or threats thereof in the years immediately ahead. That the majority of these law suits will be completely phoney or close to the border line, we feel, goes without saying. The opportunities for successful legal action will be increased and there are members of the legal profession who will not hesitate to grasp them.

If it's not taxes hounding the manufacturer, then it is the increased threat that he may be

PILOT

detergent flake

...WORKS IN ANY KIND OF WEATHER

Remember last summer — recall processing problems? Forget them! For good! Pilot HD-90 is the reliable, all-weather alkyl aryl sulfonate that keeps production rolling along in high gear — even on the hottest, sticky, humid days. It is easier to measure and to pour, with fewer clean-outs. HD-90 is all-weather protection for your products, too.

Pilot HD-90 offers more detergent suds than any other material at a competitive price. That's because it's hard working — 90% minimum active drum-dried flake.

Pilot HD-90 is purer: odorless and whiter in color; dust-free and dry flowing. Pilot processes HD-90 at sub-zero temperatures, eliminating undesirable characteristics and building in the cleansing and sudsing character.

Don't wait until hot weather forces a shut-down. Prevent it by starting to use Pilot HD-90 now.

Packed in polyethylene lined fibre drums and 5-ply paper bags.

Write for literature and samples.

PILOT *California Co.*

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Manufacturers of
Sulfonic Acid
Dodecyl Benzene Sulfonates
Sodium Toluene Sulfonate

slapped with a suit for alleged injuries which his products supposedly have caused. Just recently we heard from an old reputable firm in the mid-west that they had been notified by an attorney that a client, a female custodial worker, had been permanently injured by inhaling the pine fumes of the firm's cleaner. The product has been on the market for some 30 years, same formula, and this was their first experience with a claim of personal injury. They were stunned by the threat of a law suit. What to do? Pay off and keep it quiet,—or fight?

That there will be more of this sort of thing as people and lawyers discover the new precautionary labeling laws, we believe, is self-evident. We feel it is for manufacturers also to be conscious of the new laws, to prepare to protect their interests and to exercise greater labeling caution than ever before.

* * * * *

AEROSOL CLINICS . . . . Two aerosol clinics will be held under the auspices of the Chemical Specialties Manufacturers Association in October, one in New York and a week later, another in Chicago. Actually, these "clinics" will be one-day affairs covering all phases of pressure packaging, propellants, containers, valves, filling, shipping, storage and marketing. They will comprise a series of lectures and discussions by leading experts in the various divisions of pressure packaging.

The clinics will be designed primarily for younger executives whose firms already market aerosol products or who may be planning to market them. They will be open to everybody, whether members of CSMA or not. A small fee, probably ten dollars, will be charged each person attending. Registration will be through the CSMA office. An attendance of some 250 persons is anticipated.

These clinics offer the opportunity for those not familiar with pressure packages to in effect take a short course in the subject, to be grounded in aerosol principles by top executives in the business. That the Aerosol Division of CSMA is to be commended for this activity, goes without saying. That it is an opportunity for new men and younger men to get the basic "facts of life" about pressure packages, also is quite apparent.

SAVINGS STAMPS . . . . A plan to use U. S. Savings Stamps as premiums to be given away with consumer merchandise is being frowned upon in certain quarters of Washington. Babbitt came up with the idea to promote the sale of their cleansers and other products. One congressman has threatened to introduce legislation to ban the practice. He fears that the use of Savings Stamps to boost sales might imply government endorsement. The Treasury Department, sort of hard pressed in the sale of stamps and bonds, looks favorably upon the idea.

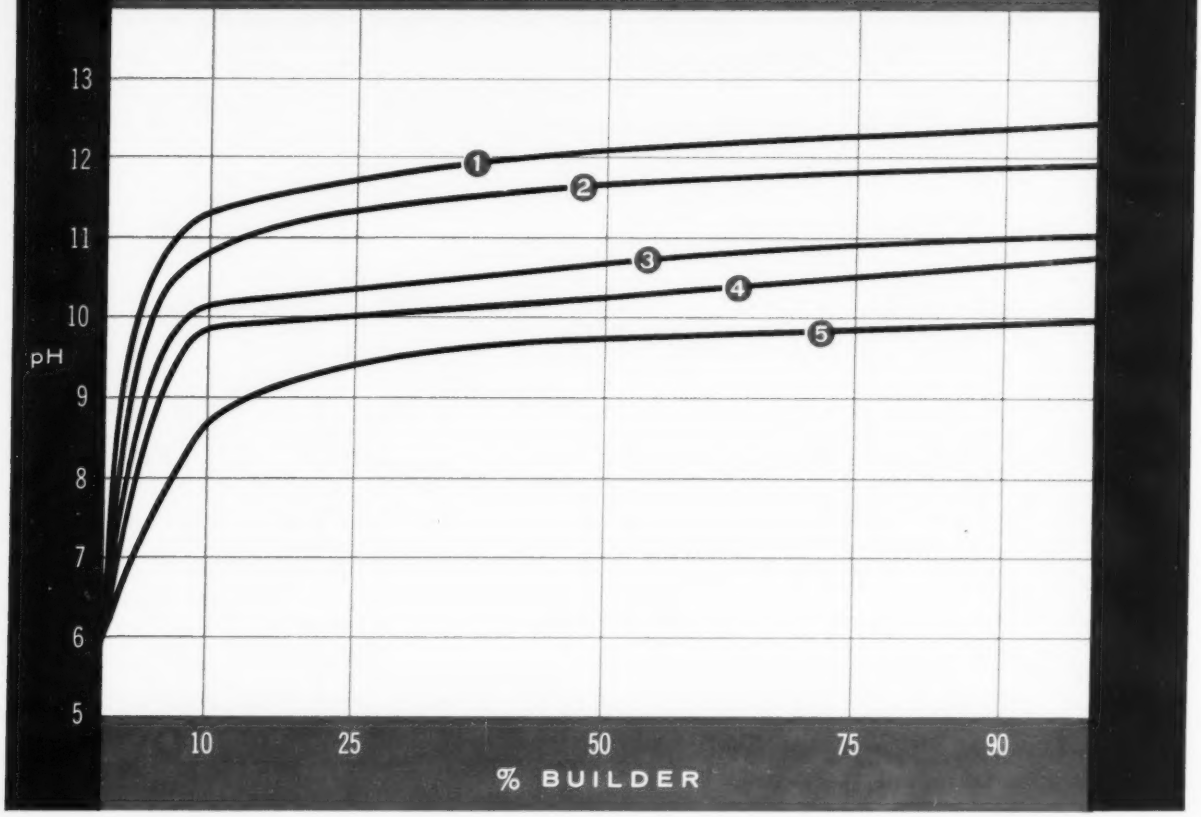
The prestige of Savings Stamps, says this congressman, will "hardly be enhanced by being associated in the public mind with a particular brand of toilet bowl cleanser." Prestige! Endorsement! Unpleasant connotations! Too often the way our Washington politicians think. People spend U. S. money to buy toilet bowl cleanser. Maybe that hurts the prestige of our money. And what stupid idiot would suspect that Uncle Sam might be endorsing "a particular brand of toilet bowl cleanser?"

To us it would "enhance the prestige" of some of these Washington politicians if they would come down off their high horse, quit being so holy and righteous and get a little hard headed like the Treasury fellows. We can see no harm in using Savings Stamps as premiums. Those who oppose, we feel, "strain at a gnat while they swallow a camel."

* * * * *

PRICES . . . When a company reduces its prices substantially, it's usually not funny, especially for competitors. But the reasons and excuses for such reductions sometimes are quite humorous. The contortions and gyrations which a company will go through to explain a simple price cut can be really laughable. The reasons given are seldom the truth and the untruth is often as transparent as glass. Notices are couched in high-sounding language which fool nobody especially the customer. That the company's heart bleeds for him is not too convincing. He is not a complete moron although the company seems to treat him as such. We wonder when the day will come when a company just cuts its prices,—and forgets the accompanying palaver.

CLEANING ACTION IN HEAVY DUTY
liquid detergents with PQ soluble silicates



pH at 25° C. of 0.2% Synthetic Detergent-Builder Mixtures in 50 P. P. M. Hard Water

1. Caustic
2. Metso Granular, sodium metasilicate pentahydrate Molecular Ratio 1:1
3. C Sodium Silicate 59° Baume Ratio %Na_2O:%SiO_2, 1:2.0
4. N Sodium Silicate 41° Baume Ratio %Na_2O:%SiO_2, 1:3.22
5. Pyrophosphate

For liquid detergents, the PQ soluble silicates supply high cleaning activity for stubborn soils. They quickly break up grease, oils and fats and suspend the soil until rinsed away. The buffering property of the silicates holds the solution at a sustained pH for effective cleaning.

PQ silicate is indeed an efficient builder, performing all features of detergency economically—emulsification, saponification, deflocculation, suspension and prevention of redeposition of soil.

No wonder more and more synthetic detergents are built with PQ soluble silicates.

PQ SOLUBLE SILICATES
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as the reader sees it . . .

Liquid Detergent Query

Editor:

I was most interested in the figures in the article, "Liquid Detergent Sales Soar" (page 45 of the July issue of (*Soap & Chemical Specialties*).

The article states:

1. Annual sales of "Tide" are between 18 and 19 million cases.

2. This accounts for 18 per cent of all powdered detergents and roughly 25 per cent of the total liquid and powdered detergents sales.

Using your figures, I come up with the following conclusions:

1. Annual sales of powdered detergents in the U. S. are approximately 38,500,000 cases.

2. Annual sales of powdered and liquid detergents in the U.S. are about 71,000,000 cases.

3. Therefore, the annual sales of liquids must amount to 35,000,000 cases.

Your article then states: "As sales of liquid detergents approach 25 per cent of the total market. . ."

According to the figures above, liquids already have 18 per cent of total market. Please straighten me out on this.

Kenneth E. Fulton,
President,
Beach Soap Co.
Lawrence, Mass.

What we should have said was that "Tide" represented 25 per cent of all sales of powdered soaps and detergents and liquid detergents.—Ed.

★

Compliment . . .

Editor:

I would like to compliment you on the excellent way in which you reviewed, in the July issue of *Soap & Chemical Specialties*, the technical bulletin describing our "Sole-Terge Toe" that was just announced.

While most trade publications will just fill space with the bare announcement or run an abbreviated press release, you have taken the trouble to study the publication and write a well-prepared review of the subject.

It is a compliment to your editorial ability to make a news release interesting and newsworthy in contrast to the usual mechanical space filling obligation.

Sol Epstein,
President,
Sole Chemical Corp.,
Chicago

★

Omits Acknowledgement

Editor:

Through an oversight I failed to include an acknowledgement in my article, "Why a Limit to Optical Bleach Fluorescence," which appeared in the July issue of *Soap & Chemical Specialties*. My paper should have stated that Dr. Seymour Goldwasser of the Edgewater, N. J. research laboratory of Lever Brothers Co., New York, supplied the method for determination of fluorescence used in the work as well as providing the auxiliary filter slide needed for this determination.

Eugene Allen,
American Cyanamid Co.
Bound Brook, N. J.

★

Where's Chemithon?

Editor:

En la Revista de Abril de 1959 del *Soap & Chemical Specialties* se menciona la planta de sulfonacion continua "Chemithon." En nuestro pais hemos agotado todos los medios para ubicar la direcciön del fabricante de la misma, por lo tanto mucho estimaremos de Uds. tengan a bien facilitarnos todo el tipo de informaciön que les fuera posible referente al mencioado fabricante, a fin de sernos factible la comuni-

(*Turn to Page* 172)

IT'S AN IDEA: To introduce new "Ipana Plus" dentifrice packed in polyethylene squeeze bottle, Bristol-Myers Co., New York, wanted an unusual promotion item to give away to food and drug buyers. The answer was this three-dimensional ceramic ash tray created by Contemporary Ceramics, Chatham, N. J. Ash tray is same color and size as actual package. A recent spot check of the value of the promotion revealed that a "good proportion" of recipients are still using the ash tray.

From PROCTER & GAMBLE... a complete catalog of versatile formulation products for your every soap or detergent need!

Kyro EO — A neutral nonionic synthetic detergent of the 100% alkyl-phenol ethylene oxide condensate type. A light-colored liquid with a clean, pleasant odor. Its superior detergent, wetting and emulsifying properties offer excellent performance in liquid detergents, sanitizer detergents, self emulsifying solvents, laundry detergents, glass, textile and dairy cleaners, insecticides and bottle washing compounds.

AMBER GRANULES. A neutral 88%, 42° titer-type soap of exceptional purity and uniformity. Well suited for the preparation of paste or gel-like products because of its high titer. Its granular form makes it ideal for powdered products. Excellent for the preparation of hand cleaners, paste cleaners, polishes, lubricants and coatings.

ORVUS ES PASTE. A specially developed synthetic detergent whose active ingredient is mainly modified alkyl sulphate. Offers exceptional efficiency and stability over a wide range of operating conditions. Wetting, penetrating, sudsing, dispersing and emulsifying properties make it excellent for the preparation of liquid shampoos, bubble baths, liquid detergents, liquid floor cleaners, insecticides, car washes, emulsion cleaners.

ORVUS AB GRANULES. A neutral synthetic detergent, wetting and emulsifying agent of the 40% active sodium alkyl aryl sulphonate type. A white product that can be used effectively in the blending of bubble baths, car washes, dishwashing compounds, dairy cleaners, insecticides, laundry detergents, rug and upholstery cleaners.

ORVUS WA PASTE. A neutral synthetic detergent and wetting agent whose active ingredient is mainly sodium alkyl sulphate. Excellent sudsing, wetting, dispersing and penetrating properties. Ideal for paste and liquid shampoos, bubble baths, liquid detergents, liquid car washes, liquid floor cleaners, insecticides, glass cleaners, rug and upholstery cleaners.

IVORY BEADS. A medium titer, neutral white soap of exceptional purity and quality. Well suited for compounding products where a mild but effective soap is required—hand soaps, polishes, protective creams, dishwashing compounds and paper coatings.

ORVUS K LIQUID. A modified, highly concentrated ammonium lauryl sulphate—modified for increased sudsing and mildness. Exceptionally low cloud and pour points. Highly fluid and easy to handle. Ideal for clear liquid shampoos and liquid detergents where high foaming is required.

Procter & Gamble's Products Research Department will gladly supply you with information on how you can save time and money when you formulate with Procter & Gamble products. You can also get technical help in connection with their use by writing to:

Procter & Gamble

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Shave products
Soap powders
Starch
Steam cleaners
Medicinal soaps
Textile detergents
Toiletries
Toilet soaps and other detergent and soap products

New private mold glass bottle, upper right, and new name have been adopted by Fels & Co., Philadelphia, for its all-purpose cleaner. A label change is also involved. Mercury-hatted cartoon character to personify the "speed" in the new product name, "Speedy Fels", has been added. New bottle, supplied by Anchor Hocking Glass Corp., Lancaster, O., is of improved appearance and designed for easy dispensing through incorporation of non-slip, easy-gripping area directly above the label. Reynolds foil labels and Phoenix metal caps are also new. Sixteen ounce bottle size shown is same as older package, but looks larger because of added height and style. "Speedy Fels" also comes in 32-ounce bottle of same design.

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Perfuming Detergents

By Victor G. Fourman, Ph. D.
Syntomatic Corp.
New York

TO appreciate some of the problems connected with the perfuming of detergents, it is desirable to review briefly their chemical nature. Until World War I, one detergent was known—soap; the only other surfactant at that time was sulfonated castor oil. As Germany was cut off from sources of many animal and vegetable oils, its chemists turned to other materials for use as building blocks for detergent agents. The first of these—of coal-tar origin—was di-isopropyl naphthalene sulfate, a good wetting agent but an inferior detergent. It was not until eight years later (1925) that the first effective product was placed on the market.

The chief disadvantage of soap is its sensitivity to hard water, and because the use of soap for water-softening is so expensive, synthetics have made such great gains. Slightly acid solutions, and those containing calcium and magnesium ions, precipitate fatty acids from ordinary soaps but they have no effect on sodium alkyl sulfates. Hence synthetics can be used in salt water as well as in hot, hard water because both the calcium and magnesium alkyl-sulfates are readily soluble. Another group of detergents are the so-called invert soaps or cation active soaps which are quaternary ammonium salts containing at least one large alkyl group. They are used mainly for textile finishing and need not concern us here.

Materials are now available which have the cleaning action of soaps but differ from them greatly in chemical structure. Salts of the alkyl-sulfuric acids with 10 or more carbon atoms are examples of such products; the alcohols used for making them are obtained from the hydrogenation of fats and oils. In addition, there are the alkyl-aryl sulfonates which represent the largest volume in the detergent fields. Until the end of World War II detergents went almost entirely into industrial channels, first into textile and leather manufacture, later into metal cleaners, cosmetics and shampoos. When builders such as alkalis, soda ash and trisodium phosphate, which originally were used in conjunction with soaps by commercial laundries to obtain better detergent action and replace part of the soap with less costly materials, were added to synthetics, these were greatly improved and considerable impetus was given to their development. In addition to various builders, other components are used in detergent formulations: ingredients to prevent redeposition of dirt, optical bleaches to mask off-white substrates, stabilizers to improve foam properties, perfume oils to mask off-odors and to impart pleasant fragrances, colors to enhance eye appeal.

It is the non-ionic group of detergents which is showing real growth. Nonyl phenol, for example, reacts with ethylene oxide to form a polyoxyethylene chain. Non-ionics were first employed for industrial purposes but they are rapidly coming into use in consumer products. They now have a definite place in liquid detergents such as those used in dish-washing compounds.

For many liquid detergents, especially those which are only slightly alkaline, the perfuming

A major consideration in the successful marketing of any detergent, in addition, of course, to color and shape of the bar, is the fragrance. Newly introduced "Spree," a detergent toilet bar of Colgate-Palmolive Co., New York, was no exception.

problem would not be much removed from the one encountered in scenting mildly alkaline soaps were it not for the fact that certain detergents actually deodorize a number of perfume materials. When a detergent destroys an offensive odor, this effect is highly desirable, but not when it attacks perfume components which are relied on to give the final product a pleasing fragrance. Flett and his co-workers (1) found that anise oil, cinnamic aldehyde and benzyl salicylate are hardly affected by certain detergents while other perfume ingredients are actually deodorized by them. Even the odors of such sturdy components as terpineol and oil of patchouli become considerably weaker when in contact with some detergents.

Not only the detergent materials themselves but many of the additives used in the final formulations can be quite destructive to the usual soap perfume components. As in many perfume problems, whatever satisfactory results are obtained after a long series of tests can be ascribed to empirical findings. It is known that the reactions which can take place between perfume materials and soaps are many and varied; in cases involving perfume materials and detergents, reactions are apt to be more numerous and of greater variety. To indicate how complex some of these reactions may be in soaps, the observation of Better and Davidsohn (2) is cited here that perfume materials containing amyl and benzyl salicylates may act as saponification catalysts; substances with one hydroxyl group directly bound to an aromatic ring also act in this manner. In a system where a number of perfume materials come in contact with detergents, even more intricate reactions are possible. Some perfume formulations used for detergent products may have as many as 30 or more components, a number of which in turn, being natural essential oils or resinoids, are extremely complex mixtures.

The actual introduction of the perfume oil into a liquid detergent product usually presents no problem because most perfume ingredients are highly soluble in such detergents. In spite of this, care must be taken to avoid all constituents which may cause turbidity or sediment to form. In perfuming solid or powdered detergent products, additional difficulties are encountered. Often the perfume oil is sprayed on the powder immediately after the detergent leaves the drying unit. In such cases, the perfume oil must have considerable thermo-stability. This method of perfuming is sometimes used because the powder is hydroscopic, and allowing it to cool before perfuming would lead to the absorption of much moisture and the formation of lumps. Another condition which in many other instances is common practice when introducing a perfume oil into a powder, is avoided in the perfuming of powdered detergent products, that is, in mixing perfume oil and powder in a ribbon type blending machine. Such an operation causes large quantities of fine dust to form, and its presence is undesirable in a packaged product.

Before discussing the types of perfume odors to be selected for use in detergent products, some comments should be made on the odors of detergents themselves. It is not true, as some formulators of detergent products assert, that all of their detergent raw materials are odorless. Thus to formulators of this opinion, the problem of imparting a suitable scent to their wares is of little or no concern. According to Kilmer (3), nearly all detergents possess some odor when unperfumed; many of them contain various odorous substances. He points out that the existence of odorous impurities in low concentration "is not an evidence of substandard quality for there is an economic barrier of cost which limits the extent to which a raw material can be purified." This is a just observation, but even were all the components odorless, fragrance would not be neglected because today it is more effective than ever in sales appeal.

There are in general five different types of off-odors associated with detergent materials, and these must be masked when they become perceptible.

(a) Odorous substances such as petroleum derivatives occuring with alkyl-aryl sulfonates; also, slight petroleum odors present in nonionics;

(b) Fatty odors originating from aliphatic alcohols found in alkyl sulfates;

(c) Sulfur odors sometimes originating from such detergents as nonyl phenol sulfonate made from propylene trimers and tetramers, which may contain sulfur derivatives;

(d) Odors formed as the result of slight oxidation of certain alkyl-aryl detergents. To avoid this condition, various anti-oxidants have been recommended.

(e) Odors resulting from pyrolytic action when detergents are overheated during drying processes.

The formulator may be content with merely masking any or all of these off-odors. On the other hand, he may want to impart a definite scent to his final product. The public is no longer content with such odors as citronella and lemongrass. These were common scents in the early history of detergents but much better fragrances are offered today as the result of the incentive of competition. This does not mean that every detergent product must possess a floral bouquet. On the contrary, odor must be associated with the function of the detergent whenever possible. A heavy duty detergent for washing blue denim, containing a floral odor, would not be acceptable. No matter how effective the cleansing action, how good the formulation, housewives would consider a product perfumed in this manner—totally unfit for the work it is designed to perform. Detergents for washing delicate fabrics should have a delicate, floral scent; detergents for disinfecting purposes should be perfumed with such odors as pine, lavender, rosemary.

For dish-washing compounds no cloying odor should be used. The housewife wants a pleasant, refreshing scent for a dish washing detergent, but she does not want it to adhere to the dishes after they have been washed and are ready for use. Here citrus types have some advantage. In addition to being refreshing they are favored by men as well as by women, and since many dishes today are washed by men, this should be taken into account. Detergent bars which emphasize cold-cream properties should be perfumed with fragrances associated with cold-cream. In the course of our work an amusing request has been complied with to provide a "soapy odor" for a detergent preparation. As strange demands are often made on the talents of a perfumer, some day a "detergent" odor may be wanted for a soap.

No attempt is made here to provide formulas for use in perfuming detergents, but a few suggestions may be of value. Highly stable ingredients are always safe to start with, that is, stable with respect to alkalinity and to elevated temperatures. In the perfuming of detergents, cost is a most important factor so that the main ingredients must be low-priced and readily available. A number of esters meet these requirements of stability and low cost fairly well. Among them are amyl salicylate, methyl salicylate, isobornyl acetate and terpinyl acetate. Not all esters are as readily hydrolyzed by mild alkaline media as one may be led to assume. Cedryl, isobornyl, terpinyl and guaiyl acetates are fairly resistant. Methyl benzoate, phenylethyl benzoate, amyl acetate and geranyl acetate are less stable. Other esters such as benzyl acetate and cinnamyl acetate are rather unstable. Alcohols with odor value are useful in perfume formulas for detergents because they have, as a rule, fairly high boiling points and good stability. Citronellol, geraniol, phenyl ethyl alcohol, cinnamic alcohol and terpineol are examples of such alcohols. Essential oils, including cedarwood, rosewood, lavender, lavendin, pine and petitgrain, may be used to blend with various aromatics to obtain a more finished fragrance. Too much reliance should never be placed on by-products obtained from the distillation of essential oils and aromatics. Such by-products are often unstable, develop unpleasant by-odors, are not uniform and are not always available. Their chief appeal lies in their low cost. But since the competition in the quality is keen even among low-priced detergents, perfuming materials based on by-products leave much to be desired.

After a perfume oil has been formulated with attention having been given to its suitability for a particular detergent, stability factors, cost of materials, and odor appeal, the oil should be thoroughly tested before being finally approved. The experimental batch or batches of the perfumed detergent should be placed in a drying oven at 42° C. for a number of weeks, and carefully examined from time to time to observe and

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Edwin Morgan, perfumer of Lever Brothers Co., New York, sniffs perfume-impregnated blotting paper to check odor at research center of Lever in Edgewater, N. J.

Polyvinyl Alcohol...

POLYVINYL alcohol, potentially useful to the chemical specialties formulator, has up to the present time found only limited applications in this field, although it is widely employed in a number of diversified industrial applications. As a polymer, however, it has a number of unique and important properties of value for specialties. The present paper describes the product's general properties and its current and potential utilization in various branches of the processing and specialties industries.

Polyvinyl alcohol, first synthesized in Germany in 1925, was commercially introduced in this country by Du Pont in 1939. Chemically, polyvinyl alcohol can be broadly classified as a polyhydric alcohol with secondary hydroxyl groups on alternate carbon atoms.

As is true with most polymers, variations in structure or composition have a major effect on end use characteristics and make them more adaptable to some applications than to others. With polyvinyl alcohol, change in product properties and performance can be controlled in the manufacturing process as well as by chemical modification or compounding at the time of use.

In the manufacturing process, two major variables are controlled by processing conditions. These are the molecular weight of the polymer and the degree of alcoholysis. Both of these properties have a pronounced influence on the properties or use characteristics of the polyvinyl alcohol. As a result, polyvinyl alcohol is available in a number of grades, varying in both viscosity or molecular weight, and degree of alcoholysis. For example, the Du Pont Company produces eight grades of "Elvanol" polyvinyl alcohol which are used commercially in large volumes. Selection of the grades for any specific application is governed by end use requirements.

*Paper presented at the 45th midyear meeting, Chemical Specialties Manufacturers Association, Chicago, May 19, 1959.

Chart I illustrates the changes in polyvinyl alcohol properties which are effected or controlled by processing variations. It will be noted that polyvinyl alcohol is available in three viscosity or molecular weight ranges. For simplicity in discussing molecular weight, we can consider the three types as being high, medium, and low viscosity. The average molecular weights of the three types are: high viscosity, 170,000 to 220,000; medium viscosity, 120,000 to 135,000; and low viscosity 30,000 to 35,000. It can be seen from Chart I that the water sensitivity or degree of water solubility increases as the molecular weight of polyvinyl alcohol decreases. Higher values for tensile strength, tear resistance, elongation, and flexibility are obtained with increasing molecular weight.

As indicated in Chart I, polyvinyl alcohols at two alcoholysis levels are considered commercially important: partially hydrolyzed grades, alcoholized 87 per cent to 89 per cent and completely hydrolyzed grades which are alcoholized from 99 per cent to 100 per cent. These differences in percent alcoholysis also affect product properties.

Water Solubility Range

As the percent alcoholysis increases, there is an increase in tensile strength, tear resistance, and elongation. Water sensitivity is anomalous in that maximum sensitivity occurs at about 88 per cent hydrolysis. One would expect water sensitivity to increase further as complete alcoholysis is approached. However, as more hydroxyl groups replace acetyl groups from the polyvinyl acetate polymer, hydrogen bonding begins. Thus, water molecules find it increasingly difficult to envelop the polymer chain and effect solubility, solve the completely alcoholized grades of polyvinyl alcohol.

Completely alcoholized and partially alcoholized polyvinyl alcohols have many industrially valuable properties or characteristics in common. Some of these properties or characteristics can be found in other polymers. However, the particular combination of properties is unique to polyvinyl alcohol, thus making it one of the most versatile polymers available.

For example, one of the most important properties of polyvinyl alcohol is its water solubility. With most polymers, water solubility warrants little further discussion. In the case of polyvinyl alcohol, water solubility can vary—and be controlled—over a wide range. The water solubility can range from complete solubility in a few seconds to relative insolubility over extended periods. These differences depend on the type of polyvinyl alcohol employed. The partially alcoholized types are soluble in both hot and cold water. Thus, in adhesive formulations where water resistance is an important prerequisite, the completely alcoholized polyvinyl alcohols find most utility. Conversely, in remoistenable adhesives, where resolubility is important, we find partially alcoholized polyvinyl alcohol being used.

In many applications, the water resistance of polyvinyl alcohol can be improved still further by chemical modification. The use of either cross-linking agents or materials which react with the hydroxyl group can yield polyvinyl alcohols which are insoluble, even in boiling water.

Since polyvinyl alcohol, as generally used, is dissolved in water Heat is therefore required to dis-

a Versatile Synthetic Polymer

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prior to use, its film-forming abilities are of extreme importance in most applications. Among water-soluble polymers and many solvent-soluble polymers, polyvinyl alcohol has no peer in its ease and ability to form tough transparent films. Being chemically saturated, polyvinyl alcohols are not affected by age. Films of polyvinyl alcohol prepared more than 16 years ago show no evidence of yellowing or embrittlement. The film-forming property of polyvinyl alcohol is utilized in almost all of its applications: adhesives, paper coatings, textile sizing, and production of unsupported films.

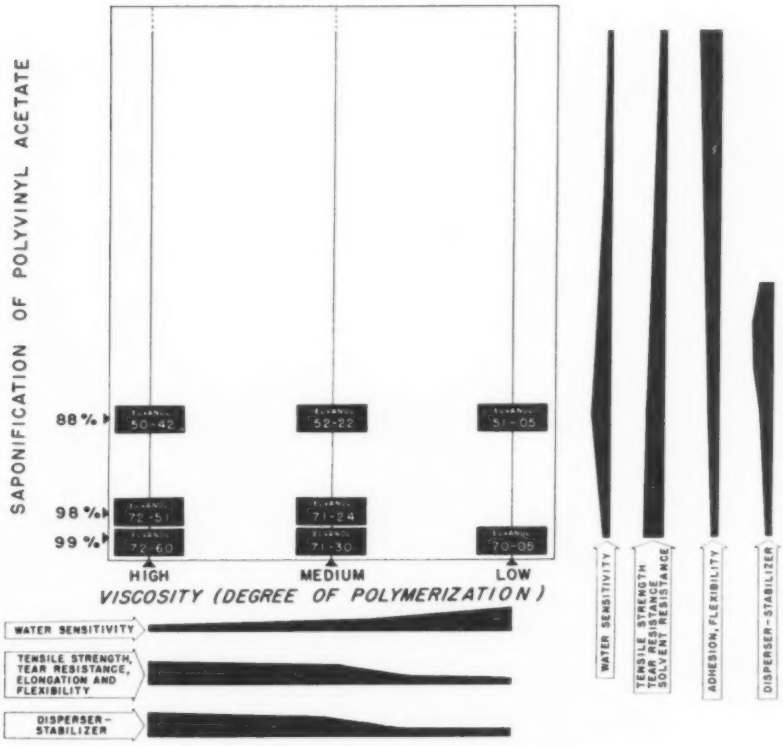
The unusual toughness of polyvinyl alcohol is best demonstrated by comparing its tensile strength with that of other polymeric materials. Films cast from high viscosity, completely alcoholized polyvinyl alcohol give tensile strength values in excess of 20,000 psi. By comparison, methyl cellulose films average 9,000-12,000 psi. Average tensile strengths for sodium carboxymethylcellulose are 8,000-15,000 psi. Polyethylene has tensile strengths ranging from 1,200 to 4,000, while "Mylar" polyester film will give tensile values of 17,000-23,000 psi. The exceptional toughness and strength of polyvinyl alcohol immediately suggests its use in films, textile sizes, paper coatings, protective coatings and coatings requiring excellent scuff or abrasion resistance.

The combination of water solubility and film strength are currently being utilized in one use which should be of interest to chemical specialties manufacturers. This application is the use of polyvinyl alcohol film for unit packaging of a wide variety of products, ranging from soaps, to bath oils, to insecticides. The ready solubility of partially hydrolyzed polyvinyl alcohol—plus its film strength—combine to produce a film which will withstand rough handling, can be readily heat-sealed, and which will dissolve in a matter of seconds. Where longer periods of exposure to water are required prior to disintegration of the package, one can use mixtures of various grades of polyvinyl alcohol to obtain controlled solubility over a period of time or a range of temperatures. The Du Pont Company does not manufacture polyvinyl alcohol film. Such films are commercially available from Mono-Sol Corp., Gary, Ind. and Reynolds Metals Co., Richmond, Va.

CHART 1

"ELVANOL"

POLYVINYL ALCOHOL



Adhesive Properties

Another of the more important properties of polyvinyl alcohol is its adhesive or binding strength. Much of this can be attributed to its ease of film formation and the resultant high tensile strengths previously discussed. As a result, polyvinyl alcohol is one of the most valuable resins available to adhesive compounders and shares the honor with polyvinyl acetate emulsion for creating the synthetic resin adhesives industry. In this field, polyvinyl alcohol is used as an extender for resin emulsions. Although generally higher priced than the emulsion it extends, its adhesive and filming properties allow use of lower solids

—and thus lower cost—adhesive compositions with the desired properties of quick-tack, either water sensitivity or insolubility, and all the advantages of water-based compositions.

Polyvinyl alcohol is also used in substantial volumes as the major component in adhesives where water-resistant properties are required. A typical example is the adhesive which was used to laminate V-Board during World War II. In this case, completely alcoholized polyvinyl alcohol adhesives were used to fabricate cartons which were unloaded over the side of ships and floated ashore. This product has since found nonmilitary application in the production of beer cases and fruit and vegetable cartons, all of which require resistance to water and high humidities.

Closely allied to the adhesive properties of polyvinyl alcohol are its binding properties. In adhesive applications, polyvinyl alcohol is used to bond or laminate two surfaces; in binder applications, it serves to bond a number of particles, fibers, or other materials. The utility of this property is important in the nonwoven fabrics industry. Here, polyvinyl alcohol is used in the production of both nonwoven fabrics and ribbons. In ceramics, polyvinyl alcohol is used as a temporary binder to impart strength to greenware prior to firing. Catalyst manufacturers use polyvinyl alcohol in pelletizing or granulating operations. The binding properties of polyvinyl alcohol are important to the paper industry in coatings where it is necessary to bind pigment particles to themselves, as well as to the paper substrate.

Impermeability of Film

Polyvinyl alcohol film can be considered essentially impermeable to all gases, with the exception of moisture vapor and ammonia. Typical determinations on a medium viscosity, completely hydrolyzed polyvinyl alcohol film conditioned at zero per cent relative humidity and 25°C. show zero transmission for oxygen and nitrogen. Under similar conditions, the transmission rate of carbon dioxide is only .02 gram/square meter/hour. This high degree of impermeability is of value in packaging aromatic materials, such as soap, and in protective coatings.

The grease or solvent resistance of polyvinyl alcohol is as outstanding as its gas-barrier characteristics. Complete grease or oil resistance can be realized in coatings or films of polyvinyl alcohol. Solvent resistance is also excellent. For example, polyvinyl alcohol is unaffected by either hydrocarbon or aromatic solvents. Only a few organic materials, such as amides, exhibit some solubility for polyvinyl alcohol, and then only under rigorous conditions of temperature and time. Commercially, this property makes polyvinyl alcohol readily adaptable to such uses as greaseproof paper coatings, paper sizing, and solvent barrier linings.

PVA as Dispersing Agent

Most grades of polyvinyl alcohol possess disperser-stabilizer properties. Polyvinyl alcohol is the preferred dispersant for polyvinyl acetate emulsions and is becoming an important factor in suspension polymerization of polyvinyl chloride.

Formulated into detergent compositions polyvinyl alcohol has been shown to exhibit outstanding ability to prevent redeposition of soil. Details of experimental work in this field were presented in *Industrial and Engineering Chemistry 45*, No. 3, 597-602 and in U. S. Patent 2,755, 252 (July 17, 1956).

Somewhat related to its disperser-stabilizer function is the flow improvement which polyvinyl alcohol can impart to many materials. Shaving cream formulations have been suggested as an outlet which would utilize this property of PVA.

In the general field of cosmetics, polyvinyl alcohol does find use in facial mask preparations, hand cleaners, and shampoos. The Federal Food and Drug Administration offers no objection to its use in cosmetics, if the polyvinyl alcohol content in the preparation does not exceed 7.5 per cent by weight of the formulation.

Economics of PVA

Compared on a pound for pound basis with competitive synthetic or naturally occuring products, polyvinyl alcohol may appear excessively priced for certain applications. At prices ranging from 57 cents to 83 cents per pound polyvinyl alcohol competes for markets with starches priced at seven to 12 cents per pound, casein at 20 to 25 cents, glue at 30 to 35 cents, and CMC at 30 to 70 cents. In certain applications the particular properties of polyvinyl alcohol may be so desirable that the added cost is justified per se. In numerous applications PVA may "go so much further" that the economics of the end product may be in its favor in spite of its apparently high price per pound. For example, one pound of polyvinyl alcohol can replace about three pounds of casein in paper coating formulations. A straight cost comparison justifies replacement of casein as a binder by polyvinyl alcohol.

Where the cost of polyvinyl alcohol as a raw material is considered to be excessive, the practice of using extenders is common. Here, we can consider that polyvinyl alcohol is used to upgrade other products such as starch. The use of polyvinyl alcohol-starch combinations is prevalent in textile sizing, paper coating, and adhesive applications. Such mixtures yield films or coatings with improved strength, water resistance, and abrasion resistance.

The history of polyvinyl alcohol prices is worthy of mention at this point. Since its commercialization in 1939 at a price of $1.25 a pound, polyvinyl alcohol

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New Low-Cost Sequestrants

Sequestering agents based on dextrose and starch are being used in growing quantities. Results appear promising.

THE sodium salts of gluconic, glucoheptonic, and saccharic acids are being used in increasing quantities as sequestering agents (1-5). When dissolved in caustic solutions, they prevent the deposit of lime scale on bottle-washing equipment as well as on bottles. Caustic solutions of these sugar acids are also of considerable importance for removing rust stains and aluminum foil labels from bottles and for etching aluminum alloys in the metal industries (6). Alkali etching of aluminum in the absence of sequestrants produces a hard rocklike scale in the etching tank, which requires chipping for its removal. The addition of chelating agent to the alkali has mitigated this problem significantly.

Mixtures of organic acids produced by oxidizing dextrose hydrate and corn starch with nitric acid are rich in gluconic and saccharic acids (7) and possibly contain other chelating substances. In seeking to provide cheaper sequestrants of this type, the oxidation liquors from various mole ratios of these reactants were evaluated for their sequestering action toward calcium, aluminum, and ferric ions in alkaline solution.

Good sequestration of calcium was obtained with solutions produced by oxidation of dextrose and starch with nitric acid after neutralization and adjustment to two to three per cent sodium hydroxide content. Liquors produced by oxidation of one mole of the carbohydrates with two to four moles of nitric acid gave the best results, probably because of the higher proportion of saccharic acid formed under these conditions. Sequestration of aluminum and of iron was also quite satisfactory with alkaline solutions of the oxidation liquors, but was somewhat lower than that achieved with sodium gluconate.

Nitric Acid Oxidation

In a properly ventilated hood 19.8 grams (0.1 mole) of dextrose hydrate were added to the required quantity of eight N nitric acid in a 100-ml. beaker and and heated on a steam bath until the reaction just began with slight evolution of red nitrogen oxide fumes. The oxidation mixture was then quickly placed in a cold water bath until the ensuing vigorous reaction subsided. It was then heated on a steam bath at 80-90° C. for 30 minutes to complete the reaction. The nearly colorless solution was cooled, carefully adjusted to pH 8-9 with strong sodium hydroxide solution, and diluted to 40 ml. to obtain a concentration of approximately 50 percent of sugar acids based on the weight of dextrose hydrate that was used. Each milliliter of the solution was equivalent to 0.5 gram of the reacted dextrose hydrate. To keep the volume of oxidation liquor below 40 ml., concentrated nitric acid was used in reactions where the mole ratio of nitric acid to dextrose was three to four.

When corn starch (16.2 grams; 0.1 mole) was reacted in a similar manner, the initial oxidation lagged during hydrolysis of the starch but soon became as vigorous as the dextrose reactions.

It is cautioned that in any large-scale oxidation of dextrose or starch with nitric acid, appropriate equipment must be used with adequate facilities for cooling the reaction mixture and ventilating or absorbing the extremely toxic nitrogen oxide gases (8). For safety reasons it is preferable to oxidize dextrose rather than starch. Nitric acid oxidation of starch, not carefully controlled, may produce nitrated starch and an explosion hazard.

Evaluation of Sequestering

Calcium (1): In this procedure 0.4 ml. of oxidation liquor, equivalent to 0.2 gram of the dextrose hydrate used, was placed in a 50-ml. beaker and distilled water was added to a volume of 10 ml. Ten milliliters of 6 percent sodium hydroxide solution and 2 ml. of 2 percent sodium oxalate solution were then added. The solution was mechanically stirred and 1 percent calcium acetate solution was added dropwise from a burette until slight permanent turbidity appeared. If considerable precipitation occurred in the solution on standing for 24 hours, titrations were repeated with fresh samples using a lesser amount of calcium

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Table 1—Sequestration of Calcium in 2-3 Percent Alkali at Room Temperature

Sequestrant[1] used, 0.2 gram	Mole ratio: carbohydrate to nitric acid	1% Calcium[2] acetate solution added, ml.	Appearance of solution after 24 hours
None (control)	—	0.2	Precipitate
Sodium gluconate	—	5	Slight precipitate
Potassium sodium saccharate	—	14	Clear
Oxidation liquor			
Dextrose	1:0.5	4	Clear
Dextrose	1:1	5	Clear
Dextrose	1:2	8	Slight precipitate
Dextrose	1:3	9	Clear
Dextrose	1:4	9	Slight precipitate
Starch	1:1	5	Clear
Starch	1:2	8	Clear
Starch	1:3	9	Clear
Starch	1:4	9	Clear

[1]Dextrose and starch oxidation liquors were used in 0.4-ml. aliquots equivalent to 0.2 gram of dextrose hydrate oxidized or theoretically 0.22 gram of sodium gluconate.
[2]Solutions were clear immediately after addition of all the calcium acetate. In separate experiments, addition of 1 ml. more than the recorded quantity of standard solution gave clear solutions immediately which after 24 hours produced a flocculant precipitate.

Table 2—Sequestration of Aluminum in 10 Percent Alkali

Sequestrant	Mole ratio: Carbohydrate to nitric acid	Concentration of sequestrant, grams[1] 0.2		0.3		0.6	
		Scale formation, hrs.					
		2	24	2	24	2	24
None	—	+	+	+	+	+	+
Sodium gluconate	—	—	—	—	—	—	—
Oxidation liquor							
Dextrose	1:0.5	—	+	—	+	—	—
Dextrose	1:1	—	+	—	—	—	—
Dextrose	1:2	—	+	—	—	—	—
Dextrose	1:3	—	+	—	—	—	—
Dextrose	1:4	—	+	—	—		
Starch	1:1			—	+		
Starch	1:2			—	—		
Starch	1:3			—	—		
Starch	1:4			—	—		

[1]Aliquots of oxidation liquors equivalent to 0.2, 0.3, and 0.6 gram of dextrose hydrate oxidized or of dextrose hydrate calculated from the weight of starch oxidized were 0.4, 0.6, and 1.2 ml., respectively. All sequestered solutions contain a black precipitate of cupric oxide from the aluminum alloy.

Table 3—Sequestration of Iron in 2 Percent Alkali at Room Temperature

Sequestrant[1] used, 0.2 gram	Mole ratio: Carbohydrate to nitric acid	9% Ferric sulfate solution added, ml.	Appearance of solution after 10 minutes
None (control)		1	Precipitate
Sodium gluconate		25[2]	No precipitate
Oxidation liquor			
Dextrose	1:0.5	20	Precipitate
Dextrose	1:1	20	Precipitate
Dextrose	1:2	20[2]	No precipitate
Dextrose	1:3	20	No precipitate
Dextrose	1:4	20	No precipitate
Starch	1:1	15	Precipitate
Starch	1:2	15	Slight precipitate
Starch	1:3	15	Slight precipitate
Starch	1:4	15	Slight precipitate

[1]Dextrose and starch oxidation liquors were used in 0.4-ml. aliquots equivalent to 0.2 gram of dextrose hydrate oxidized or that calculated from the starch that was oxidized.
[2]Adding 5 ml. more of ferric sulfate solution produces a precipitate of ferric hydroxide.

acetate until no precipitate, or only a negligible quantity, was observed after 24 hours.

Aluminum. A known quantity of sequestrant was added to 100 ml. of distilled water containing 10 grams of sodium hydroxide in a 150-ml. beaker followed by 7.5 grams of "Alcoa 248-T"* aluminum alloy. The covered beaker was heated in a water bath at 70°C. for 8 hours and allowed to stand at room temperature for 16 hours. The mixture was observed for alumina scale formation after 2 hours of heating and at the end of the cooling period.

Iron. The procedure used has been described in detail in a previous publication (1). A volume of 0.4 ml. of the oxidation liquors was employed.

Discussion of Results

By using the methods described, the sequestering action of various oxidized carbohydrate solutions toward calcium, aluminum and iron was determined. Table 1 shows that in a 2-3 percent caustic solution containing 0.4 ml. (equivalent to 0.2 gram of dextrose hydrate used) of oxidation liquors where the dextrose or starch to nitric acid mole ratio was 1:2 to 1:4, the sequestration of calcium obtained was nearly twice that found with 0.2 grams of sodium gluconate and 64 percent of the value obtained with potassium sodium saccharate. Since 1 mole of dextrose hydrate or starch is theoretically convertible to 1 mole of gluconic or saccharic acid it appears that oxidation with one mole of nitric acid has produced mostly gluconic acid and oxidation with 2 to 4 moles of nitric acid has given a considerable quantity of saccharic acid.

Sequestration of aluminum and of iron by the nitric acid oxidation liquors of dextrose and of starch is compared with sodium gluconate in Tables 2 and 3.

*The mention of firm names or trade products does not imply that they are endorsed or recommended by the Department of Agriculture over other firms or similar products not mentioned.

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PVP's Use in Specialties Grows

Polyvinylpyrrolidone's growing use, applications in specialties ranges from detoxifying iodine type sanitizers to anti-soil redeposition in detergents.

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General Aniline & Film Corp.,
Easton, Pa.

POLYVINYLPYRROLIDONE is a relative newcomer among the commercial water-soluble polymers produced within the United States. In early 1956, General Aniline and Film Corp. began full scale production after several years of active commercial development. Polyvinylpyrrolidone is usually referred to by the shorthand designation of PVP.

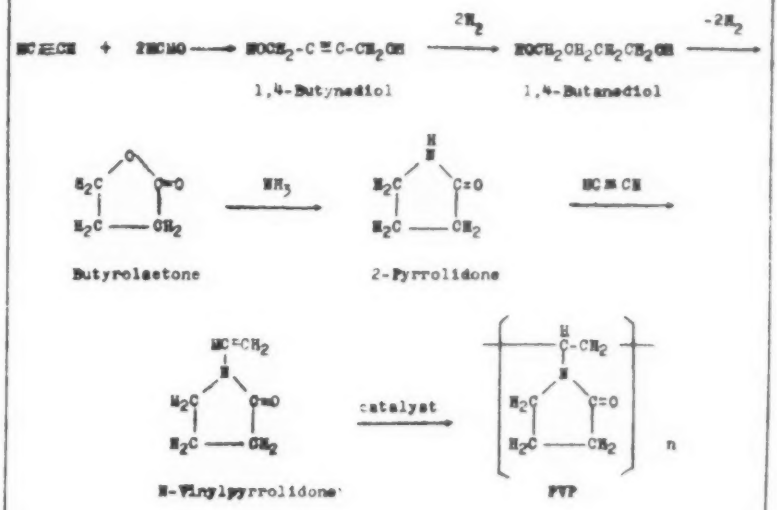
The synthesis of PVP was developed in Germany by Dr. J. W. Reppe. This six step process, shown in Figure 1, is used by General Aniline at its Calvert City plant. The basic raw materials employed are acetylene, formaldehyde, ammonia, and hydrogen.

Four viscosity grades are offered by General Aniline at present. PVP K-15 and PVP K-30 are in the form of spray dried powders, while the K-60 and K-90 grades are currently sold as aqueous solutions.

The relationship between K value, molecular weight, and aqueous viscosity is shown in Table 1.

Figure 1

SYNTHESIS OF PVP



Properties of PVP

The commercial utility of PVP is inherent in several outstanding properties:

Wide solubility and compatibility range

Complexing and detoxifying ability

Physiological acceptability

Protective colloid action

Film forming ability

Adhesive qualities

Compared with other commercial water-soluble resins, the solubility of PVP in organic solvents is unusual. The K-30 grade,

*Paper presented during 45th midyear meeting, Chemical Specialties Manufacturers Assn., Chicago, May 19, 1959.

Table 1. Relationship of K value of PVP with molecular weight and aqueous viscosity

K value	Avg. mol. wt.	@ 25°C, centistokes aqueous solution Viscosity of 20%
17	10,000	8
30	40,000	23
60	160,000	400
90	360,000	8,000

Table 2. Comparative oral toxicity* PVP-Iodine 10 vs. Lugol's solution

	PVP-Iodine 10	Lugol's Solution
	mg. available iodine per Kg. of body wt.	mg. available iodine per Kg. of body wt.
LD_0	1000	100
LD_{50}	1400	400
LD_{100}	1700	700

* White rats were dosed with aqueous solutions containing 2.5% available iodine in both cases.

supplied in powder form and containing up to 5% water, is soluble in the lower alcohols, glycols, nitroparaffins, methylene dichloride, amines, and organic acids. However, when anhydrous, PVP increases its solubility range to include ketones, esters, and aromatic hydrocarbons. PVP is compatible with a broad spectrum of resins and modifiers, including such diverse materials as sodium alginate, CMC, cellulose acetate, vinyl chloride-vinyl acetate copolymers, polyacrylonitrile, dimethyl phthalate, and oleyl alcohol. It should be noted that the viscosity of PVP's aqueous solutions is independent of pH over the range 0 to 10. They also exhibit a high tolerance for a variety of inorganic salts.

The term "complexing action" is used here to describe PVP's ability to form molecular adducts with other substances. Sometimes the result is a solubilizing action as in the case of iodine. Sometimes the result is a precipitating action, as in the case of tannins.

Physiological acceptability means that PVP is nontoxic and compatible with body fluids. A long clinical history has shown it to be essentially nontoxic by oral administration, skin absorption, intravenous or intraperitoneal injection. Extensive chronic feeding studies with rats and dogs indicate that levels of up to 10% of the diet have no harmful effects.

PVP yields films that are clear, transparent, and glossy, showing excellent adhesion to metals, glass, plastics, and human hair. Like most water-soluble resins, PVP is hygroscopic and its films are readily soluble. Tackiness at high humidities may be minimized by incorporating water-insensitive modifiers such as 10% of an arylsulfonamide - formaldehyde resin.

A brief discussion of some of the applications for PVP will serve to relate the above properties with commercial utility and may suggest uses within the spheres of interest of readers of this publication.

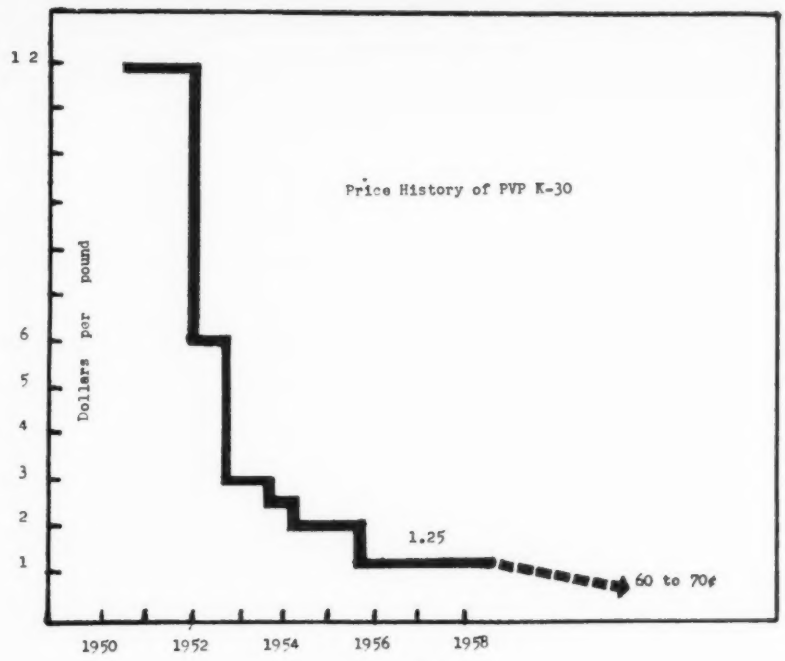


Figure 2

Pharmaceuticals: Historically, PVP was developed in Germany as a synthetic blood volume expander. Its widespread use by the German army is credited with saving thousands of lives during World War II. It is stockpiled for emergency use within the United States.

The properties of physiological acceptability and complexing action have led to the extensive investigation and use of PVP as a drug retardant and suspending agent. As a retardant, it prolongs the therapeutic action by releasing the drug more slowly within the body. This action has been utilized with anesthetics, antibiotics, hormones, analgesics, as well as other drugs. The adhesive and nontoxic properties of PVP have also led to its use in tablet binding and tablet coating.

PVP's ability to complex and detoxify is dramatically illustrated by the development of PVP-Iodine as a broad spectrum germicide (1, 2). This compound retains the germicidal properties of iodine while the oral toxicity of iodine is drastically reduced, as illustrated in Table 2.

It is significant that at the levels of normal usage the toxicity of the available iodine has been reduced to one-tenth or less. PVP-Iodine in the form of mouthwash, tincture, ointment, etc. has been commercialized by the Isodine Pharmacal Division of International Latex Corp.

Textiles: The important applications of PVP in the textile field can be associated with its complexing and protective colloid action. PVP is a highly efficient stripping assistant for removing color from cellulosic fibers, particularly vat, sulfur, and direct dyestuffs. Such operations are necessary in correcting errors in textile printing. This action can be related to the weakly cationic nature of PVP and its ability to form a cation-anion complex with substances having phenate or sulfonate groups.

This dye-complexing characteristic can be utilized "in reverse" by incorporation of PVP into a synthetic fiber. This greatly increases the dye receptivity of a dye-resistant textile fiber, as for example, polyacrylonitrile (3).

Beverages: A recent advance in brewing technology has been the introduction of PVP as a fining and stabilizing agent for beer (4). One of the problems long recognized by the brewing industry has been chill haze, i.e. the cloudy appearance which often develops in refrigerated beer. A special brewer's grade of PVP K-90 is now being offered by General Aniline under the trade name, "Polyclar H." This product appears to precipitate selectively those tannins which cause chill haze in beer with consequent improvements in taste and taste stability. Here again the ability of PVP to complex with phenolic compounds has found utility.

Along similar lines a beverage grade of PVP K-30, "Polyclar L*", is being used for the clarification of wines, whiskey, and vinegar (5).

Cosmetics and Toiletries: PVP is now well established as an ingredient of many cosmetic formulations. Its ready acceptance by the cosmetic chemist can be attributed to the following properties: Adhesion to hair and skin, ability to form lustrous films, solubility in organic solvents as well as water, nonallergic character, and protective colloid action (6).

The use of PVP in the popular aerosol hair spray is its best known application in this field (7). When properly compounded, the PVP film does not dust or flake on the hair. Its ready solubility enables the hair to be reset by the use of a wet comb. Aerosol hair sprays in the United States contain 1.25 to 2.0% PVP, while in Europe amounts up to 6% have been reported. While the aerosol hair spray market has been predominantly feminine to date, considerable effort is being directed toward evolving a product for men.

PVP is used in shampoos to improve foam stability and to impart lustre to the hair. Investigation by Shelanski and Cantor demonstrated that PVP is substantive to hair (8). Even after a shampoo is rinsed away, enough PVP is adsorbed on the hair to give it sheen and manageability. PVP's use in antiseptic shampoos holds promise in view of its effectiveness in reducing the irritation of the phenolic type bacteriostats as will be shown later.

The dye-complexing ability of PVP has led to its use in hair tints or color rinses. It has been reported that by adjusting the ratio of the PVP to dye the tint can be made either more permanent or more transient, higher PVP concentration favoring the latter.

PVP is being incorporated into pre-shave and after-shave lotions; amounts of the order of 0.5% are typical. It appears to impart emolliency and to reduce skin irritation. These properties as well as PVP's soil suspending ability can be utilized in hand cream preparations. It may be used in so-called "waterless hand cleaners" for removing dyes and oily grime. The following formulation is illustrative:

Waterless Hand Cleaner

	Parts by Weight
PVP K-30	2.5
Igepal CO-630*	4.0
Propylene glycol	4.5
Monoethanolamine	1.0
Triethanolamine	3.0
Water	40.0
Oleic acid	10.0
Mineral oil	35.0

*Trademark, General Aniline and Film Corp.

The water solution of the first five components is added with stirring to the oleic acid-mineral oil phase.

In the related field of dentifrices, an interesting use of PVP has been patented by the Colgate-Palmolive Co. It was found that the PVP complexing or suspending ability could be utilized to increase the stain removing power of a dental cream. The following table abstracted from a Colgate-Palmolive patent (9) demonstrates the effect of PVP on the removal of tobacco stain.

Table 3. Effect of PVP on removal of tobacco stain

Porcelain Strip	% Whitenes	Color
Unstained	100.0	Grayish white
Stained	81.2	Brown to black
Brushed with control dental cream	88.6	Brown
Brushed with cream containing:		
0.125% PVP	101.0	Grayish white to white
0.25% PVP	104.0	Grayish white to white
0.5% PVP	105.3	Grayish white to white

Detergents - Soap - Sanitary Chemicals: It is common practice in the detergent industry to incorporate CMC into synthetic detergent formulations to act as an anti-soil redeposition agent. Although CMC gives satisfactory results on cotton, the results on other fibers are in general unsatisfactory. The protective colloid action of PVP has been compared with CMC in the General Aniline laboratories

Table 4. Comparison of PVP and CMC as anti-redeposition agents in an alkylaryl sulfonate detergent

Reflectance Loss
(Initial reflectance unsoiled fabric minus final reference)

	PVP K-20	PVP K-30	Sodium carboxy methyl cellulose	Detergent only
Cotton	22.4	29.7	33.0	43.8
Dacron	4.8	6.7	39.5	33.8
Nylon	26.1	31.0	62.8	63.0
Orlon	10.3	13.3	41.6	41.1
Dynel	37.0	38.8	52.5	50.6
Acetate	9.2	9.7	38.5	41.8
Rayon	31.6	36.6	51.0	59.3
Wool	5.6	6.0	15.0	15.1

*Trademark, General Aniline and Film Corp.

using a typical "built" alkylaryl sulfonate detergent. A series of fabrics soiled with carbon black were subjected to standard Launderometer washings. The reflectance losses of the dried fabrics were measured photometrically and are given in Table 4.

The composition of the detergent formulation is as follows:

%	
25	Soropon SF* (85% active alkylaryl sulfonate)
40	Sodium tripolyphosphate
28	Sodium sulfate
6	Sodium metasilicate
1	Anti-Redeposition Agent

*Trademark General Aniline and Film Corp.

While PVP shows a measurable improvement, i.e. lower reflectance loss, over CMC in cotton fabric, the effect is much more dramatic with the synthetic fibers. This is significant in view of the difficulty encountered in the laundering of synthetic fabrics. Lowering the K-value from 30 to 20 also showed a measurable improvement. Of course, the current price ratio of PVP to CMC, roughly three, would limit PVP's use in this application at present to the fine fabrics field. However, with the increasing use of cotton-synthetic fibre blends, the need for more effective antisoil redeposition agents will become increasingly critical. Combinations of PVP and CMC are an area worthy of investigation.

Excellent results were obtained in Germany by adding PVP to soap and detergent bars for molding. The result was better bonding, especially in the case of soaps containing "builders", and increased foam stability. Additions of 1 to 3% PVP K-90 based on the total product were indicated.

Soap in the form of films or sheets has long been recognized as a convenience from the standpoints of sanitation and disposability. Henry Goldschmiedt in an article in *Soap and Chemical Specialties* mentions his success with a PVP-polyvinyl alcohol combination as a soap sheet binder (10). The use of PVP in water-soluble film packaging is also an area which holds promise.

In the case of germicidal scrub soaps and detergent-sanitizing formulations, PVP can be used to reduce the skin irritation and sensitizing effect of the chlorinated phenol and bisphenol types of germicides. Recent studies by the Industrial Biology Research and Testing Laboratory have shown that the full germicidal properties of the phenol are retained while the skin irritating and sensitizing effect are minimized.

The basic formulation for the product used to obtain the results shown in Table 5 consists of:

5%	o-Benzyl-p-chlorophenol
30%	Sodium dodecylbenzene sulfonate (12% active)
15%	Isopropyl alcohol
0.72%	Sodium hydroxide
	Balance water

It is evident from the results that the sample containing 0.25% PVP gave complete protection on the primary application and partial protection on the challenge application.

In the sanitizing field, the PVP-Iodine complex, which was mentioned earlier, offers some interesting possibilities. while the complexed iodine retains its germicidal activity, its vapor pressure has been reduced and its irritant effect on mucosa minimized. These facts coupled with its ready solubility in water suggest its use in swimming pool disinfection.

Miscellaneous: At this point brief mention should be made of some other applications in which PVP has shown promise.

In inks based on dyestuffs, PVP improves solubility, prevents gelation, and gives greater color value per pound of dyestuff. Its use is becoming well established in ball point pen inks. Similarly, PVP has been used in formulating stamp pad inks, particularly where easy washability is important.

PVP is effective as a grinding and suspending aid for a variety of organic and inorganic pigments. For example, PVP K-90 is used to suspend TiO_2 in latex systems. In wax and polish formulations, PVP can function as a protective colloid and film former. It may be incorporated with many of the paste, liquid, or emulsion types to give improvements in emulsification, cleansing action, and gloss. Its remarkable adhesion to glass suggests its use in glass cleaning compositions.

The Commercial Future of PVP: In discussing potential markets the question of price inevitably is raised. For this reason it is of interest to review the pricing history of PVP K-30 and to guess at its long range price, as shown in Figure 2.

The sharp price drops in 1952 to 1954 reflected the results of intensive commercial development and transition from a predominantly pharmaceutical market to industrial outlets.

The price drop in late 1955 was in anticipation of large scale commercial production at Calvert City. A long range price of 60 to 70 cents per pound appears feasible. When this is achieved, PVP will have arrived in the major league of water soluble resins.

It is safe to predict that only

(*Turn to Page* 173)

Table 5. Effect of PVP in reducing skin irritation of phenolic sanitizer-cleaner

% PVP in Formula	Number of human subjects showing skin irritation: Primary application — No reaction	1+ reaction	2+ reaction	Challenge application — No reaction	1+ reaction	2+ reaction
0.	43	6	1	39	9	2
0.05	47	3	0	43	6	1
0.25	50	0	0	46	3	1
5.0	50	0	0	50	0	0

New Labeling Laws

How will they affect chemical specialties?

By Bernard L. Oser

Food and Drug Research Laboratories, Inc.
Maspeth, N. Y.

FOR several years now, there has been agitation to pass a Federal law requiring warning labels on all household chemicals which might be injurious to children. Pediatricians and others concerned, have complained that many housewives are unaware of the hazard presented to small children by such items as detergents, nail polishes, cleaning fluids and the neutralizers used in home permanent waves. The likelihood is now stronger than ever that a Federal chemical specialties labeling law will be written.

Several states including Connecticut, Indiana, Kansas and Texas, now have labeling laws in effect. The recent revision of the New York City Sanitary Code, which will take effect in October, covers this subject in considerable detail. The American Medical Association and the Chemical Specialties Manufacturers Association have drawn up model laws, which they are advocating. The criteria proposed for determing the nature or degree of hazard associated with household products, and the labeling recommendations, are in general derived from the Manufacturing Chemists Association's recommendations as to precautions and warnings which should be observed in the handling of many chemicals. That Federal legislation governing chemical specialties will follow the same general lines is indicated by the wording of the identical bills introduced in the present (86th) Congress by Representative Roberts (H. R. 5260) and Senator Magnuson (S. 1283) "to regulate the interstate distribution and sale of packages of hazardous substances intended or suitable for household use."

Scope of Coverage

The significant feature of any new law is the fact that it will, no doubt, extend poison-type precautionary labeling to substances not commonly thought of as being poisons. The reason for this can be derived from the statistics. In 1956, a typical, year there were 1400 deaths from poisons (exclusive of gases such as carbon monoxide). This represents 2.5 per cent of all accidental deaths other than those caused by motor vehicles. This wouldn't seem to depict a major national problem, except for two additional facts: For every fatal poisoning there were probably several hundred times as many cases of non-fatal poisonings. More important, a high portion of these poisonings and deaths involved young children. Of the 1400 deaths, 384 were children under five years of age, 22 were between five and nine, 10 were 10 to 14, and 18 were 15 to 19 years of age.

Among the five year olds and under, 153 of the deaths resulted from drugs, 89 from petroleum products, 68 from heavy metals (e.g. lead compounds), 21 from corrosives, nine from solvents and 66 from other "non-drug" chemicals. On the other hand, among adults over 15 years of age, most (758) of the deaths were from drugs and only 207 resulted from non-drug chemicals. Clearly the hazard which precautionary labeling laws seek to alleviate is that of small children getting hold of chemical preparations, the potential for harm of which is not generally appreciated by their parents and certainly not by the children themselves.

Dramatically pointing up this conclusion is the fact that fluoride containing insecticides—substances of which most adults and even many children are wary—caused only about two per cent of the non-drug poison deaths in the older age group, and less than one-half per cent in young children. Apparently, warning people about the possible dangers does reduce the use hazards.

New State & Federal Laws

State laws vary quite widely in their scope and show an unfortunate trend toward lack of uniformity. For example, the Connecticut law applies to hazardous substances "intended for general home and household use" and excepts soap, soap products and sensitizers. The Indiana legislation covers household products containing poisons, exclusive of products used only for agricultural and industrial purposes and drugs. In Kansas the law encompasses "any article which purports to be useful in the accomplishment of any domestic task, any article for personal use,

or any toy, which is a substance or which contains substances that may be injurious to human beings." North Carolina's law has an even narrower scope including only "household cleaners which contain volatile substances capable of producing toxic effects."

The bills which have been introduced into the United States Congress are based substantially on the criteria of the Manufacturing Chemists Association and of CSMA. Materials falling within the scope of this legislation are categorized as substances which are toxic, corrosive, irritant, flammable, highly sensitizing or tending to generate pressure through decomposition, heat or other means (which includes aerosols). In general, substances are defined as hazardous if "such substance or mixture of substances may cause substantial personal injury or illness during any customary or reasonably anticipated handling or use." Whereas the model bills of AMA and CSMA include radioactive substances as hazardous, the bills now before Congress do not.

The influential Department of Health of the City of New York has recently revised its Sanitary Code to state, among other factors relating to chemical specialties, that a reasonably anticipated use of a product includes "its use in a manner not intended by the manufacturer, such as its accidental ingestion by children."

The model bill of the American Medical Association proposes to include as hazardous substances those which are strong sensitizers, causing inflammatory reactions in living tissue on contact with susceptible individuals. A sensitizer would be considered strong if it induced an extensive dermatitis or other type of moderately severe disability in one out of 10,000 cases.

Significantly, the burden of proving that a chemical does not need special warning labels will be on the manufacturer. As in most legal situations, however, it is up to the Government to decide whom to challenge. But once challenged, it is up to the manufacturer to establish his own defense. Naturally, if any doubt at all exists (and in the eyes of the government, some doubt will probably exist concerning any substance of normal complexity) it would be advantageous to have reliable data compiled and on hand. If nothing else, a lot of money could be saved in the way of wasted labels and the expenses of recalling shipped stock—if the decision were to go against the manufacturer.

Largely through the efforts of the Manufacturing Chemists Association reasonably well established techniques have been developed to determine the degree of hazard which exists in the use of chemicals. They have had a long period of trial and include standards for categorizing various degrees of toxicity. For example, the oral LD_{50} test in rats (most generally specified) establishes the dosage per kilogram of body weight which causes half of the test animals to die within 48 hours.

Federal Standards for economic poisons adopt the MCA limit of 50 mg. per kilo as the LD_{50}. However, movements in the case of household chemicals it is believed that the criteria should be more restrictive. Some proposed regulations demand a much more stringent test of nontoxicity, setting the LD_{50} limit at five grams per kilo, and raising the observation period from 48 hours to two weeks. This thinking is based, as is most of the current thinking regarding poisonous or potentially dangerous substances, on the safeguarding of children. Young children can be poisoned by swallowing as little as a mouthful (15 ml.) of certain products (e.g. kerosene). The New York City Code proposes different signal words depending on the degree of lethality as measured by the LD 50. "Caution" (or "Warning"), "Danger," or "Poison", respectively must appear when the oral LD 50 is five grams, one gram, or 50 mg (or less).

Most of the proposals and bills, now agree on criteria for inhalation and skin toxicity tests. In an inhalation LD_{50} test, rats are exposed for one hour to a concentration of 200 parts per million of gas or vapor or two mg per liter of mist or dust; and in a skin LD_{50}, rabbits (more suitable than rats for dermatological research) are exposed to a 24-hour contact at a dosage of 200 mg. per kilo body weight, with—in both cases—an observation period of over 48 hours. The AMA model bill differs here. It would specify an exposure to one-tenth the amount of vapor and five times the dose of skin contact (dermal toxicity seems to be of particular concern to the AMA) and would extend the observation period to two weeks.

Most of the proposed laws provide that "if available data on human experience are found to indicate results different from those obtained on animals with specified dosages and concentrations, the human data shall take precedence in arriving at a determination of whether or not a substance is a poison." The MCA test includes the proviso that the concentration specified for the test must be higher than that which "is likely to be encountered by man when the substance is used in any reasonably foreseeable manner." The AMA bill does not contain the latter qualification.

There are areas in which the procedure is not yet well defined, and these may lead to controversy either before or after a Federal law is enacted (It is hoped, actually, that these definitions will be deferred, rather than having lawmakers—who may not be knowledgeable in scientific matters—impose difficult or impossible limitations). In addition, there are problems of techniques to be resolved. There is for instance, no answer generally agreed upon to the question as to whether or not rats to be used in oral toxicity tests should be fasted (and if so, for how

(*Turn to Page* 101)

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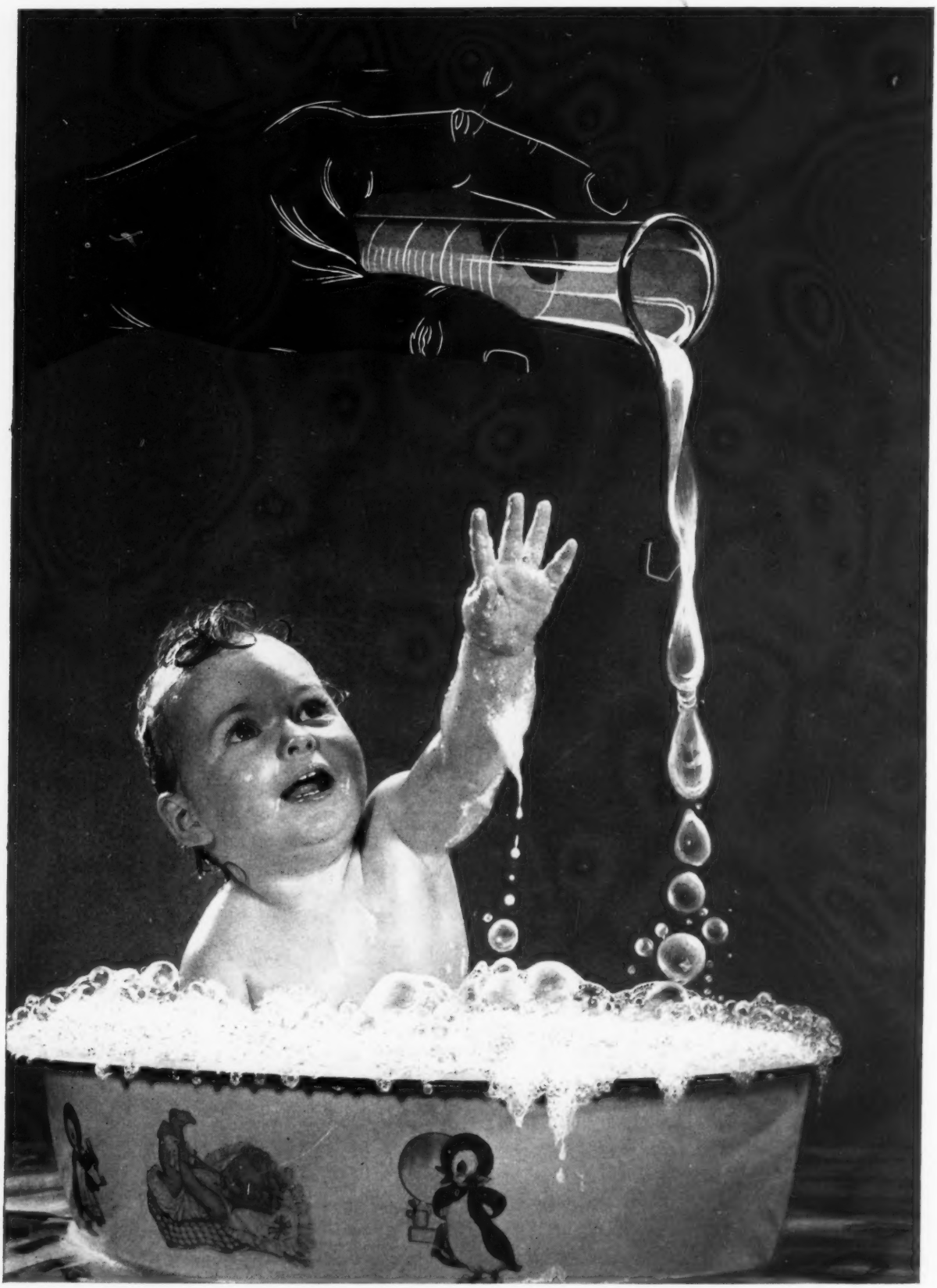

58 SOAP *and* CHEMICAL SPECIALTIES

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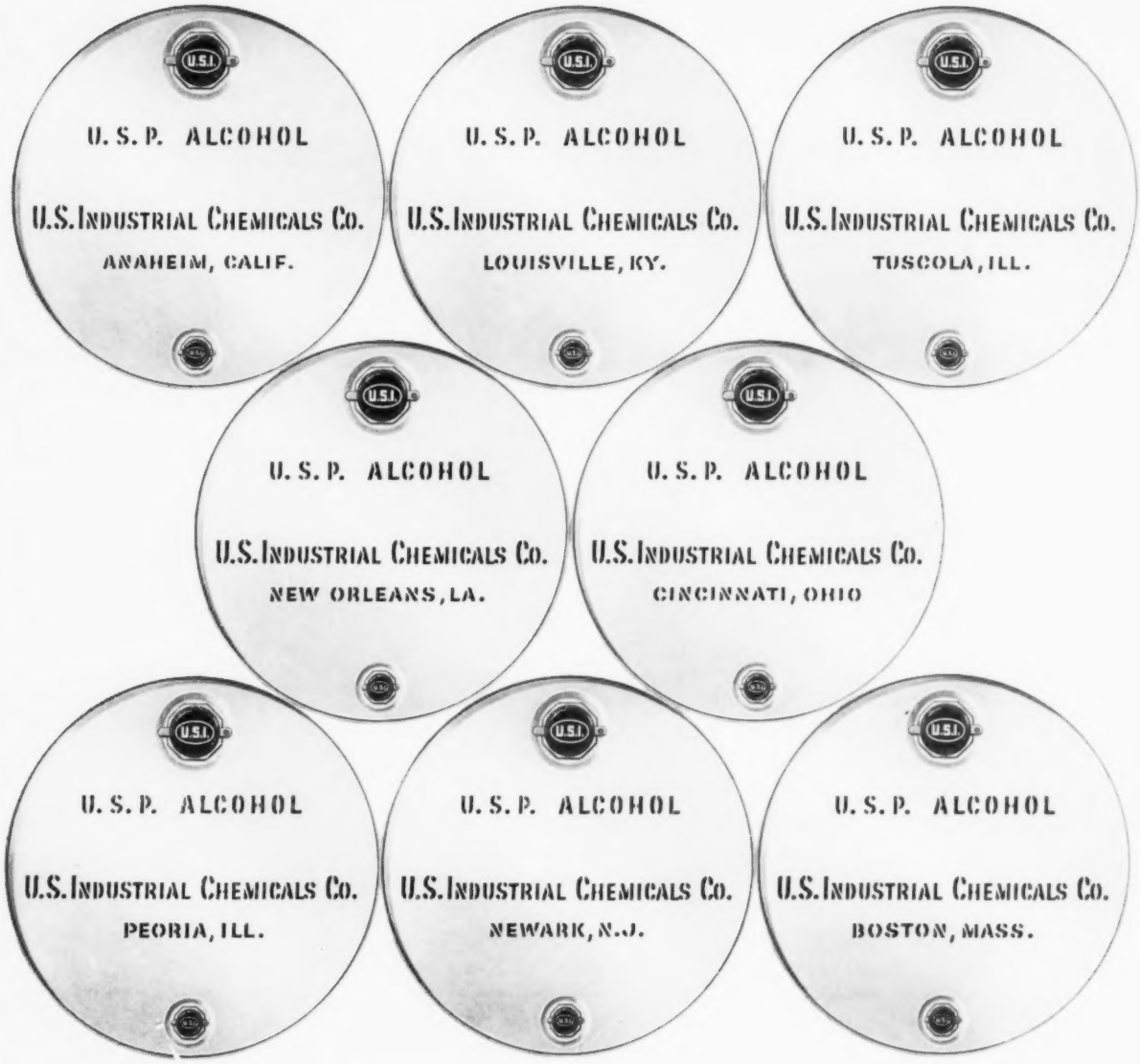

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A new approach to

Fabric Pest Control

Novel method starves fabric pests by incorporating antimetabolites in diet

The nutrient value of contamination as a food source for fabric pests was investigated and divided into two categories, direct and indirect. The role of vitamin synthesis of microorganisms was studied and considered the source of indirect contamination. In both instances the yields of nicotinic and pantothenic acid were found to be vital to fabric pest development. Antimetabolites were tested as a control measure to inhibit these vitamins. It was shown that these growth factor analogs, when incorporated into a fiber diet, would cause feeding insects to die of starvation.

By Roy J. Pence*,
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FABRIC pests, in the economic sense, comprise primarily clothes moths and dermestids (carpet beetles) (Fig. 1). These insects confine the greater part of their feeding damage to textiles. As most textiles are woven from natural fibers, despite increasing inroads of the newer synthetic products, the concern of the following investigation is with the insect pests of woolens. The fact should not be overlooked, however, that synthetics are not entirely immune to insect attack (Pence, 1958).

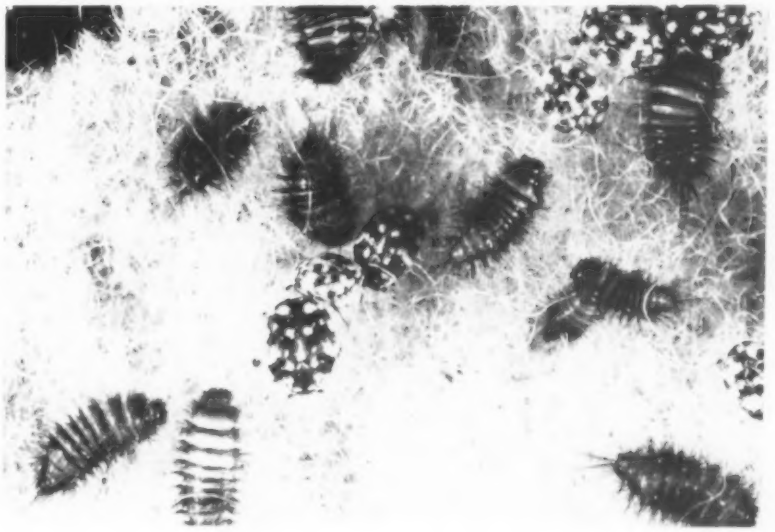
The chemistry of natural fibers is known. It is also known that these fibers, once thoroughly cleaned, do not contain sufficient nutrients to enable fabric pests to complete a normal life history. Dermestids are known to pass from 5 to 16 instars before reaching larval maturity, some requiring a period of as much as 630 days to reach pupation; and this variation is directly related to nutritional factors (Griswold, 1941). Clothes moths subsisting on scoured test cloth may never complete metamorphosis (Tischak, 1922; Crowell and McCay, 1937).

The investigations of Fraenkel and Blewett (1946) into the nutritional requirements of the clothes moth, *Tineola bisselliella* (Hum.), clearly indicated what factors of the vitamin-B complex are necessary for a successful development of this insect. In the absence of either riboflavin, choline chloride, pyridoxin or thiamin, growth is retarded. But of paramount importance is the fact that little or no growth takes place in the absence of niacin (nicotinic acid) or pantothenic acid. It is therefore concluded that these two vitamins are highly essential to the normal development of clothes moths.

The present studies, which embrace the nutrition of dermestids, indicate that there may be nutritional factors of equal importance, occurring in or on natural fibers, which may belong to the sterol group. Although the addition of sterols either to a natural or synthetic diet results in little improvement in growth or development, their importance appears manifest when all sterols are removed from test fabrics by constant ether extraction or absorption. It is hoped that continued studies will reveal the nature of this nutritionally important lipid factor.

When supposedly "clean" fabrics are found damaged as a

Fig. 1. Larvae and adults of the furniture carpet beetle on test fabric.



*Use of antimetabolites for fabric pest control is under control of Regents of Univ. of California patent pending.

result of insect feeding, it must be concluded that traces of extraneous substances are present to make fabrics palatable and/or nutritionally adequate. These substances may be considered as essential supplementary nutrients required by fabric pests in order to support their normal development. They must therefore become available through contamination.

It is necessary in this study that the broad meaning of contamination be divided into two categories—direct and indirect. Direct contamination results in the provision of certain dietary values. Nutrients are supplied when food or liquids are spilled on a fabric. Perspiration and urine, containing vitamins of the B group, contribute their share toward direct contamination (Cornbleet *et al.*, 1943) (Fig. 2).

There also exists an indirect contamination from the synthesis of microorganisms, that results in the production of essential vitamins in amounts that are small but highly important nutritionally (Pence, 1958).

Large quantities of pantothenic acid alone become available through contamination, whether it be direct or indirect.

Pantothenic acid is considered a contaminant of nearly universal occurrence (Williams et al., 1933). The name "pantothenic" is from the Greek and, translated means "from everywhere." It is found in varying degrees in almost all animal and plant tissue. It is synthesized by microorganisms, among which are many ubiquitous species (Lilly and Barnett, 1951). One in particular is virtually a part of our very being and represented throughout the entire alimentary tract. It is present in abundance in the oils that exude from the body, especially from the extremities, and is known as the common bacterium, *Escherichia coli*. This communicable microorganism is one of those known to synthesize pantothenic acid.

The hands alone can be responsible for widespread and rapid transmission of sebaceous secretions over the surfaces of every description of fabric. It is easy to understand how these bacteria-laden substances are inadvertently disseminated over otherwise clean fabrics and how the subsequent process of synthesis accumulates amounts of pantothenic acid, so essential to the dietary needs of fabric pests. In addition to the yield of *E. coli* these oils serve to "trap" many species of air-borne microorganisms which are also capable of synthesizing pantothenic acid (Pence, 1958).

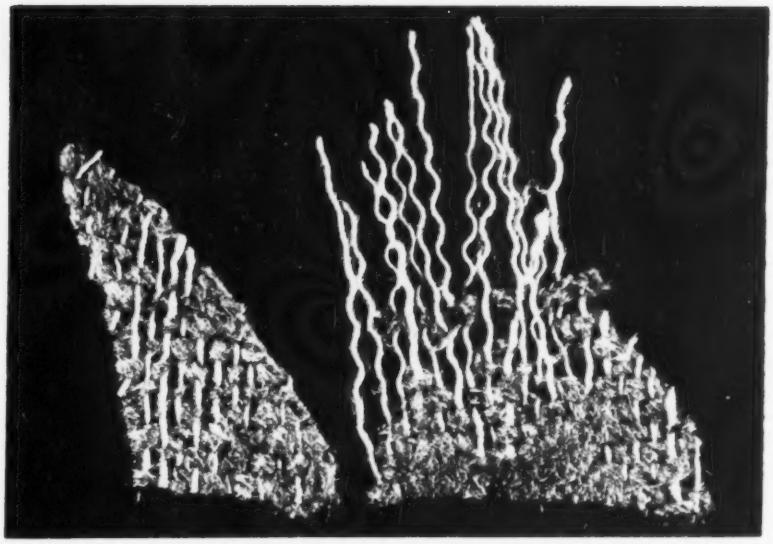


Fig. 2. Furniture carpet beetle damage to the sweat-stained liner of an industrial helmet. Note how the wool portions are fed away from the cotton frame-work.

Current experiments have clearly demonstrated this phase of indirect contamination. Sterile fabrics have been hand-rubbed and allowed to stand until air-borne spores, within an open room, have become "attached" to their respective surfaces. The fibers were then cultured in agar plates and moist chambers and later "read" to determine the number of species of microorganisms found growing over their surfaces. Prevalent among these, in addition to *E. coli*, were many of the common mildews, highly represented by the species *Aspergillus niger*, and the common bread mold, *Neurospora crassi*. Both species synthesize pantothenic acid (Williams *et al.*, 1933; Wagner, 1959). It is not difficult to understand how the inadvertant inoculations of myriads of bacterial and fungus spores onto receptive fibers becomes possible.

The spores of *A. niger*, in addition to being air-borne, are found in vast quantities in common soil. With the normal traffic of footprints over carpeting, involving the tracking-in of soil from out of doors, spore-bearing dust accumulates at the base and within the pile of all floor coverings. This explains some of the reasons why certain synthetic carpetings fall easy prey to insect attack (Fig. 3). The occurrence of direct contamination through soilage, plus the effects of indirect contamination by microorganisms arising through synthesis, when optimum conditons occur, provide the needed nutrients that enable fabric pests to thrive on fabrics, both natural and synthetic (Pence, 1958).

The insect itself may also be responsible for indirect contamination. When first instar clothes moth larvae are placed on sterile fibers to determine their ability to metamorphose, certain indications of symbiosis become apparent. Defecation becomes responsible for a form of localized indirect contamination. It is common to observe minute cultures of fungi arising from the large quantities of fecal matter found in the im-

mediate feeding areas. Required nutrients become thus synthesized, which may account for variations in extent of larval development under "sterile" conditions.

Present knowledge of the nutritional requirements of fabric pests, and the manner in which nutrition is obtained, provides a foundation for still further investigations into a means of depriving these pests of their dietary needs. This is approached through the use of antimetabolites.

Antimetabolites for Control

The simplicity of the ecology of fabric pests affords an opportunity to employ antimetabolites to considerable advantage, not only as diagnostic tools (as they have been used in the past) but also as a potential means of fabric pest control.

To date, antimetabolites have contributed greatly towards the knowledge of animal nutrition. These compounds, which bear a chemical similarity to vitamins or other metabolites, function as biological antagonists to the chemical they structurally resemble. When ingested and included as a part of a biological system, they enable one to learn directly the significance of specific vitamins within a complex and to quickly recognize the importance of the vitamins as dietary essentials, as was done for the silkworm by Shyamala and Bhat (1958).

When antimetabolites are used, consideration must be given to the specific value of each compound. It is first necessary to identify the metabolite and then learn what analog is antagonistic to its performance. It is necessary to be familiar with the structural alteration of the analog to the metabolite and then know exactly what biological system will be affected. Some growth factor analogs are effective against the development of microorganisms while others inhibit the metabolic processes of animals. A few are antagonistic to both plants and animals (Woolley, 1952).

When selecting antimetabolites to be employed experimentally in the control of fabric pests, one must consider separately the two previously mentioned phases of contamination, direct and indirect. Attention must be given first to the metabolites directly supplied and the antimetabolites known to inhibit them. To date, interesting results have been obtained with 3-acetylpyridine, pyridine-3-sulfonic acids, picolinic acid, and sulfanilamide as antagonists of niacin.

In considering the indirect phase of contamination, it becomes necessary to select antimetabolites known to inhibit the synthesis of niacin and pantothenic acid by microorganisms. Pantoyltaurine is known to depress supplies of pantothenic acid furnished by microorganic synthesis (Woolley, 1947). Cysteic acid is also known to antagonize the synthesis of pantothenic acid via B-alamine by *Escherichia coli* (Lilly and Barnett, 1959). With the possible exception of w-methyl pantothenic acid no effective inhibitor of pantothenic acid in animals is yet known.

A two-fold inhibition of niacin and pantothenic acid occurs when employing sulfanilamide in fabrics. To some extent this substance will antagonize existing niacin while at the same time serving to inhibit potential bacterial action. Prevention of the development of *E. coli* and the subsequent synthesis of pantothenic acid thus becomes possible. The two-fold action is of interest. Sulfanilamide may prove to be as effective as picolinic acid as a direct inhibitor of niacin, particularly when early instars of dermestids are concerned, but more interesting is its possible effect on certain symbiotic relationships. This is being further investigated by the utilization of ultraviolet light (Pence, 1917). When sulfanilamide alone is incorporated into a fiber diet, the fecal pellets of the larvae of the furniture carpet beetle, *Anthrenus vorax*, are

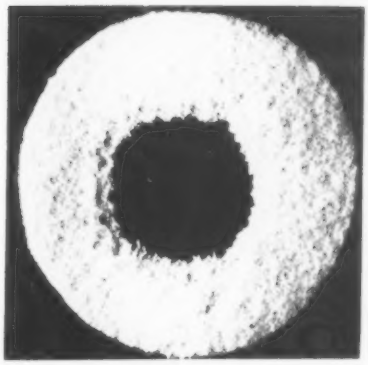
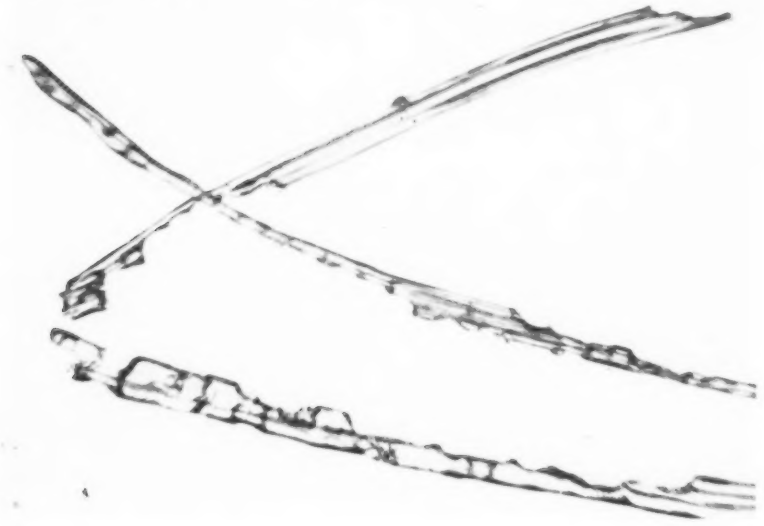


Fig. 4. Untreated center eaten away by furniture carpet beetle larvae. Undamaged remainder was treated with aqueous solution of sulfanilamide and picolinic acid. The antagonistic values of these analogs immunized the fiber against dermestid attack in spite of heavy yeasting over entire surface.

Fig. 3. Dermestid feeding damage to nylon fibers after contamination. Note the neat "bites" illustrating mandibular function.



partially non-fluorescent, while a high degree of fluorescence is evident in the pellets secreted after feeding on a controlled diet. It is here that a combination of analogs may present a broadening of antagonistic and/or symbiotic functions in the two phases of direct and indirect contamination (Fig. 4).

The specific worth of any antimetabolite, or combination of antimetabolites, can best be determined by bioassay. The biological effect these analogs have on fabric insects, as measured by mortality, is an indication of their usefulness. The gradual decline of feeding, migratory behavior, and eventual indications of malnutrition are instrumental in shedding light on the process of dietary efficiency, but these observations are of superficial value in the overall physiological effect. A significant comprehension of possible symbiotic phenomena is yet to be attained. The principal objectives are to determine whether or not antimetabolites, when employed *per se*, will control fabric pests, and if these antimetabolites will continue to function after a food supply becomes available. Will they compete effectively on a ratio of equal balance of antimetabolite *vs.* metabolite, or will some remote biological factor subsequently arise that may suppress the metabolite's effectiveness over the matching antimetabolite?

Tests to date indicate that antimetabolites, if properly applied, are economically feasible. Preliminary studies have shown them to be instrumental in causing some "break" in the metabolic chain and in causing clothes moth larvae to perish by starvation. Antimetabolites also produce definite signs of abnormality which contribute toward a better understanding of their action. After test fabrics have been treated with growth factor analogs and clothes moth eggs are introduced, the first instar larvae never reach the first molt. They may live for a period of ten days but the damage to fiber resulting from their constant "grazing" cannot be detected except by microscopic examination. This is because of their continuing migration over treated material as they search for vital nutritional elements. Contrasting with this behavior is the normal larval activity over the control test fabrics. Here the tendency is to find an adequate feeding area and then remain until the fabric is eaten away (Fig. 5).

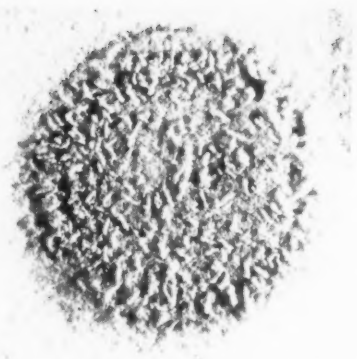


Fig. 5. Concentration of webbing clothes moth larvae illustrating migration to yeasted center of test fabric.

When fabrics treated with antimetabolites are dyed so that evidence of consumed fibers may be easily detected within the gut of the insect, the quantities are usually less than those found in insects that have fed on the untreated control fabrics. This is contrary to what might appear logical. One assumes an instinctive reaction would be to strive for greater intake of fibers so that some food values might be extracted from the larger bulk. This does not appear to be the case. The intake is decreased and so continues until death follows. Important also is the lack of fiber "severing," as found in the untreated controls, which results from the "reaping" of fibers utilized as webbing material for construction of shelter tubes. The fibers are bound together by copious amounts of webbing, hence the common name "webbing clothes moth."

The lack of fiber damage following exposure of clothes moth larvae to treated fabrics suggests continued studies in the use of antimetabolites as a means of fabric pest control. Experiments are underway to evaluate what antimetabolite, or combination of antimetabolites, would be best suited for specific purposes. While encouraging results are shown when working with the clothes moth, studies are also being made with dermestids. As these insects are capable of existing longer on a starvation diet, the lack of feeding damage to treated fabrics indicates the fibers are rendered nutritionally unsatisfactory. Of more significant importance is the noticeable degree of mortality of first-instar furniture carpet beetle larvae when exposed to a diet of niacin-deficient fibers. Second and third instar larvae appear to have slightly more tolerance to niacin deficiency, while matured larvae feed sparingly and are forced into early pupation.

In all cases it is interesting to note the lack of damage to treated fabrics, even when supplemented with liberal amounts of whole yeast in which is found the very substance so essential to fabric-pest development. In these trials brewers' yeast is rubbed into treated fabrics prior to the introduction of test insects. As would be expected, by adding greater amounts of metabolites to the antimetabolites present some prolongation of life is obtained. However, in the case of clothes moths, a second instar may be reached, but mortality follows soon after. Dermestids are more successful at maintaining life under these conditions, but again a lack of feeding damage indicates the value of low-level antimetabolite impregnations that need further experimentation in the combination of analogs to make these insects as vulnerable as the clothes moth. There is little probability that the normal contaminants will match the vitamin yields of pure yeast.

Impregnation of Textiles

The ultimate goal in employing antimetabolites for the control of fabric pests would be to permanently impregnate these compounds into new textiles in the

(*Turn to Page* 105)

Aerosol Automotive Specialties

By William Moonan*
Sprayon Products, Inc.,
Cleveland

AUTOMOTIVE specialties in pressure packaged form seem to have a brilliant future. In 1956, a speaker at a CSMA meeting listed the following types of pressure packaged automotive specialties: insecticides, lubricants, polishes, polish removers, greases, degreasers, penetrating oils, rust removers, rust inhibitors, ignition sealers, enamel, lacquers, diesel engine starters, upholstery cleaners, leather conditioners, leather cleaners, and carbon tetrachloride fire extinguishers.

In 1958, the following additional products had appeared: deicer spray, anti-fog for windshield, anti-static spray, new car odorant (for used cars), auto undercoating, dry powder fire extinguishers, spare tire inflator, mechanics' hand soap, white sidewall tire cleaner and foam type auto cleaner-polish.

A multiplicity of product types does not necessarily mean there is an active, good market for each product. For instance: A recent survey by E. I. du Pont de Nemours & Co. indicated that 81 per cent of the households in this country purchased at least one type of aerosol product in 1958. The four leading products were: insecticides purchased by 45 per cent of the households; room deodorants were bought by 39 per cent, hair sprays by 45 per cent, and shaving cream by 31 per cent. Three other product types were listed, all in the 20 per cent or less bracket, followed by paint with an eight per cent purchase record. Four other products trailed paint before car wax showed up with three per cent

Figure 1

of the households having purchased such a material. It is interesting to note that three brand names accounted for one-half of the market of over one million households that had purchased car wax. It is quite apparent that chemical specialties manufacturers have introduced a goodly number of aerosol products, but so far haven't done very much volume with any of them.

Let's take a look at the possibilities that exist in this market for manufacturers and/or distributors. In 1956, we could spray, foam, or stream products from a pressurized can. Now we can deliver the product as a coarse or fine spray, a stream, a foam, as drops, or as a ribbon. We can even deliver metered amounts with each push of the button. In addition, there are two types of self-contained propellant powered spray guns available today. (See figures 1 and 2.) This "Eveready" gun type will spray free flowing powders and water solutions with a high degree of efficiency in the use of the propellant. The second type, "Sprayon Jet-Pak", will spray higher viscosity materials, includ-

Figure 2

*Paper presented during 45th midyear meeting, Chemical Specialties Manufacturers Association, Chicago, May 19, 1959.

Figure 3

Figure 4

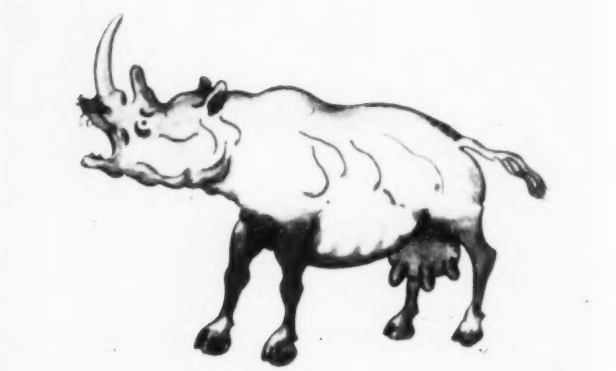


Figure 5

Figure 6

ing protective coatings, lubricants, greases, etc. In short, it will spray anything the viscosity of which can be reduced to that of thick milk or thin cream. It is not as efficient as the other type of spray gun in its use of propellant where powders and/or waterlike materials are involved.

For every "live" product or type now on the market, there are probably 10 "dead" brands or types. The failures can broadly be classified into three categories:

1.) The "Cophants" (Figure 3) which are symbolic of packages that are not very well engineered or for which the formulation has not been thoroughly tested.

2.) The "Rhinophants" (Figure 4) are a slightly different kind of animal. They represent products which are not justified as pressure packages by added convenience or added ease of use. The "Rhinophants" would include the one-shot gimmick items frequently seen on the market.

3.) "Rhinows" (Figure 5) are all right as far as they go, but they are not sufficiently promoted and advertised. This group generally includes the "We have one too" family of products.

And then there is the family of "cows" (Figure 6). These are the products that economically fulfill a need. They are properly packaged and tested and they are sold and promoted so that more than three to eight per cent of the population of this country knows of them.

Why don't you check your own list of chemical specialties that you manufacture or distribute for pressure packaging possibilities? If *you* don't get any ideas from the list, check with a custom filler or the propellant, can and valve sources for ideas and comments. I mention the custom filler first because he should have an adequate laboratory of his own, economical production facilities and a wealth of experience, plus stocks of all the necessary components, for the development and production of

(*Turn to Page* 107)

Tools of Preventive Medicine:

Insecticides and Germicides

Part II

By Lawrence B. Hall*,
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THE force pump is somewhat similar in principle, but is connected to the container by a section hose, weighs 30 to 40 pounds, is operated by the wobble action of a vertical lever and can feed two or three hoses simultaneously. Despite these devices the consensus appears to be that the best solution to the problem is careful pre-mixing of the suspension, the use of a compression sprayer not over half full, and agitation by means of frequent inversion of the tank.

The volume of delivery from the compression sprayer declines with decreasing pressure in the tank during the discharge cycle and increases slowly with erosion of the nozzle tip. The latter is no small loss, for erosion of a stainless steel nozzle orifice may increase its delivery rate by 85 percent after two weeks of field operation. Multiplied by the several thousand sprayers of a large national program the total waste of insecticides can be enormous. This problem is currently being met by routine monthly replacement of nozzle tips. One medium sized national operation alone spends $75,000 annually for new nozzle tips and considers that it is saving many times that amount by avoiding waste of insecticide. Variable pressure results in uneven treatment that is being corrected on a few programs by the use of pressure regulator valves. The mechanical valves in current use are not wholly successful due to their complexity and need for semi-skilled maintenance. A new pressure control device developed by the Technical Development Laboratories is simple, inexpensive, and nearly foolproof (13). It utilizes an orifice, through which the discharge must flow, in a rubber disc arranged so that the orifice becomes smaller under high tank pressure and returns to its original size as pressure decreases. The result is a fairly uniform pressure of about 17 psi at the nozzle orifice. In combination with an 8003 nozzle tip the device delivers a volume equal to the average delivery of the unregulated system, but with reduced nozzle erosion, smaller loss of insecticide due to atomization, and reduced toxic hazard to the operator. Field tests recently completed in Central America suggest that the device is practical and represents an improvement over present practice.

A recent development in malaria control is the introduction of organic phosphorus insecticides. This is promoted by the emergence of insect resistance to DDT. Field trials are currently under way by TDL on the use of a residual application of malathion for malaria eradication. It is being applied in suspensions of 1¼, 2½, and five per cent at the rate of 50, 100, and 200 mg./sq. ft. Toxicity to the populace and to the crew does not appear to be a hazard. Preliminary results indicate that it may offer an added advantage by its apparent stability on some mud surfaces. Experience to date shows that methoxychlor after having been left one month on mud walls in El Salvador effected a kill of 94 per cent with a 30 minute exposure. By comparison, DDT has shown kills of only 10 to 40 per cent under similar conditions.

Thus one of the tools of preventive medicine is being sharpened. Perhaps an even keener edge is in prospect in the near future with the promise of residual fumigants. It has been noted in the Technical Development Laboratories that when a small quantity of certain organic phosphorus insecticide preparations is left exposed to the air in a room a high kill of insects inside the room and some outside the room, but in the immediate vicinity, occurs (14). If these observations can be further developed, formulations improved and the toxic limits determined, we may have a new means of adult arthropod control. It might revolutionize malaria eradication and might offer solutions to problems such as those existing in Africa where residual applications have not been too effective. We could hope for a technique which might require little more than proper intervals, but before we go too far with our dreams in this direction, let's remember the ducks with DDT on their feet.

Another tool of preventive medicine is badly in need of improvement. Molluscicides are currently the best means available for

*Paper presented at the 45th midyear meeting, Chemical Specialties Manufacturers Association, Drake Hotel, Chicago, May 19.

the control of schistosomiasis, perhaps better known as bilharzia. This is a blood fluke disease, endemic in many parts of the tropics and probably only second to malaria in importance as a parasitic disease. Man is infected by the microscopic free-swimming larval forms of the parasite, found in contaminated water. They penetrate the human skin. Snails of certain species are the intermediate host and here is probably the weakest link in the life cycle at present; the place to break the infection chain by eliminating the snails from the water.

Several molluscicides are being used for this purpose, including sodium pentachlorophenate. The molluscicides are applied to streams in carefully regulated doses, for undertreatment leaves some snails alive to recolonize the stream rapidly while overtreatment flashes its warning to the sensitive snails and sends them to the dry banks to await the passing of the poison. Streams are relatively easy to treat as compared to marshy areas where snails burrowed in the mud survive heavy doses in the overlying water. Although considerable progress is being made with other attacks on this disease a molluscicide, more efficient under field conditions would be of tremendous benefit to some 150 million people now infected with schistosomes. (15) It is from the chemical industry that such an improved tool must come.

Germicides

A third tool of preventive medicine demands mention here, because of its tremendous importance particularly, although not exclusively, to the population of the United States. This tool is directed against the "germs" in our environment. In recent years there was a tendency to consider germicides of minor importance, for doctors were able to kill bacteria in the human body by the use of antibiotics. Resistance has developed in bacteria, however, just as in the insects. Most people today have read in the popular, if not in the technical literature, of hospital-acquired staphylococcal infections, which present a very serious problem. The disease manifests itself in post-operative and pulmonary infections, in skin lesions, and in other ways.

Unfortunately there is no precise knowledge of its mode of transmission, but human carriers, frank infections, and the environment are all implicated, possibly in that order of importance (16). The organism, in most cases, moves from its human source through the environment to the susceptible host. After reaching the environment, whether it be in the air or on a surface, it remains virulent for an unknown period which may range from seconds to days. It is during this period that it can be attacked by germicides.

Of course the chemical industry has been furnishing us with germicides for many years, but now there is an imperative need for better germicides to do specific jobs. All the germicides on the market today are not necessarily effective against the causative organism, *Staphylococcus aureus*. This property must be more clearly defined, for those germicides which are not effective against the organism are not only useless, they are a distinct danger due to the false security they give. A truly significant step forward in the decontamination of surfaces would be the development of germicides with long residual action. Claims for such a germicide have been reported in technical literature, (17) but have not yet been fully evaluated.

Sterilization of small objects, such as surgical instruments, is well developed, but sterilization of heat sensitive objects and of large spaces such as rooms and wards, has been a problem. The former is being met by the use of ethylene oxide diluted with carbon dioxide or "Freon" to minimize explosion hazard. The decontamination of large spaces can now be accomplished with beta propiolactone. Unfortunately the treated spaces must be removed from use for periods from six to 48 hours due to the lacrymatory properties of the gas. Preventive medicine needs better gaseous sterilants, non-explosive and less irritating to humans, which may be used without danger and which permit treated space to be quickly returned to use.

Thus preventive medicine presents a further challenge to the chemical industry which has served it so well in the past. Development of new and better tools for control of disease is indeed a goal worthy of its highest efforts.★★

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—★—

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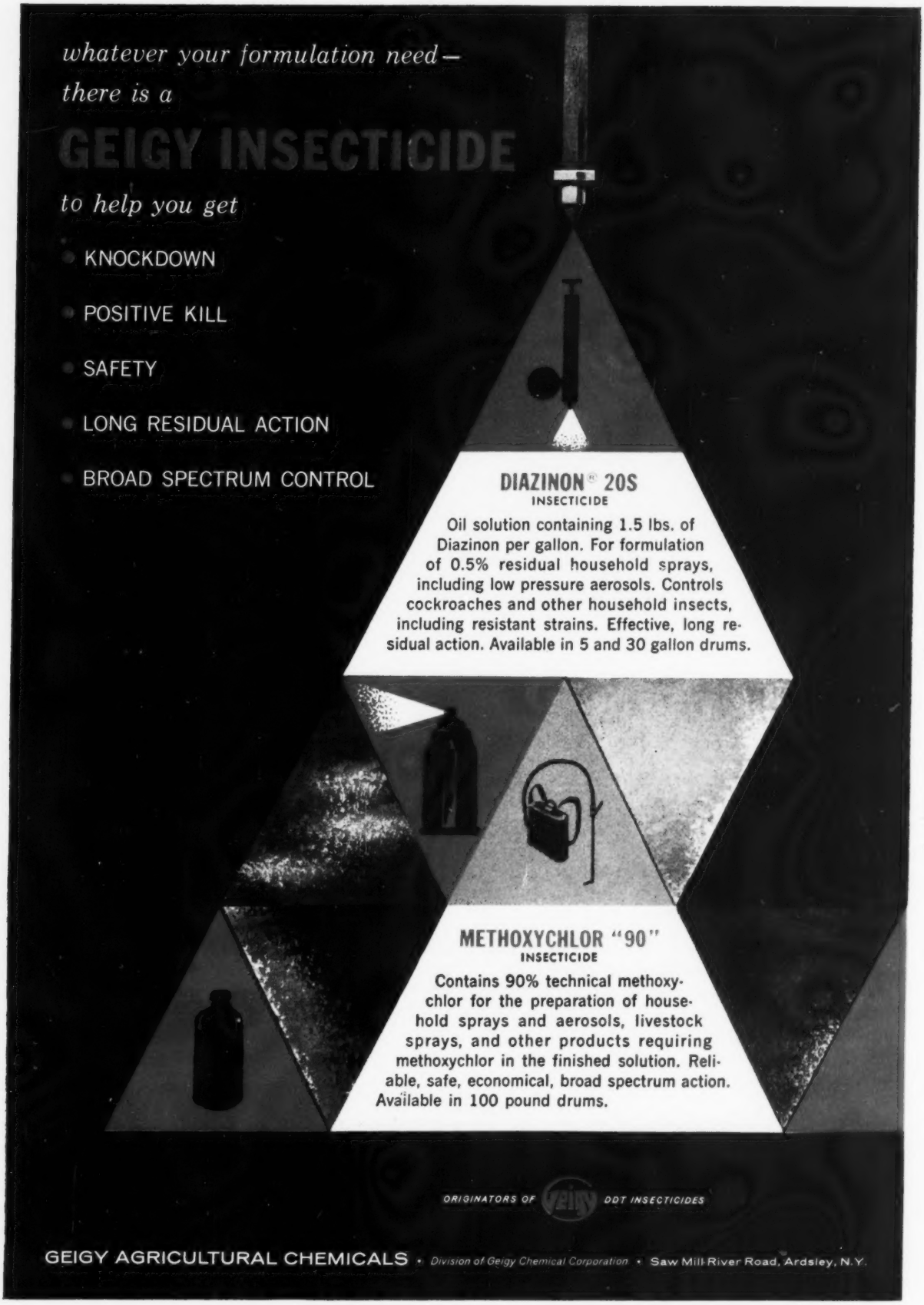

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Flow Evaluation of Aerosols

By L. Cohen, R. J. Meyer and J. S. Wolff*,
B. F. Goodrich Chemical Co.
Avon Lake, O.

Part II

MOST formulations of commercial interest will contain a minor fraction of a synthetic or natural polymer to thicken the material to a pleasing consistency. Even though present as a low percentage of the total solids of the formulation, these polymers normally have a controlling effect on the rheology of the product. A series of low percentage solids polymer "solutions" exhibiting individualistic rheological behavior can be used to demonstrate the inability of either Brookfield viscometer data or Severs rheometer data alone to completely characterize the flow problems in a pressurized package. The Brookfield data will be valuable as an indication of the flow characteristics in the regions of low shear rate in Zone 1 and Zone 3. The Severs data on the other hand accurately reproduce the high shear flow behavior in Zone 2.

In Table 1 the Brookfield rheology of these polymer "solutions" and glycerine are examined.

Table 4. Brookfield Evaluation of Synthetic and Natural Polymer "Solutions"

Material	Glycerine	1% "Carbopol 934"	2% Guar gum	2% Sodium alginate
Brookfield viscosity				
@ 0.5 rpm	400	534,000	222,000	22,000
@ 1.0 rpm	400	300,000	170,000	18,800
@ 20 rpm	450	27,250	23,800	7,300
Yield Value	0	2,340	520	32

Referring again to the general flow types, outlined in Figure 2, it is observed that glycerine exhibits Newtonian flow properties whereas two per cent sodium alginate is pseudoplastic in nature. "Carbopol 934"* has been shown to be unique in demonstrating high yield value at very low solids (1). The data presented here at one per cent concentration are characteristic of the plastic flow behavior

*Paper delivered at the 45th midyear meeting of the Chemical Specialties Manufacturers Association, Drake Hotel, Chicago, May 19, by Mr. Wolff, who is field sales manager, general chemicals, for B. F. Goodrich Chemical Co., Cleveland 15, O.

*Trade name of B. F. Goodrich Chemical Co.

Figure 1. Rheological zones in an inert gas pressure package

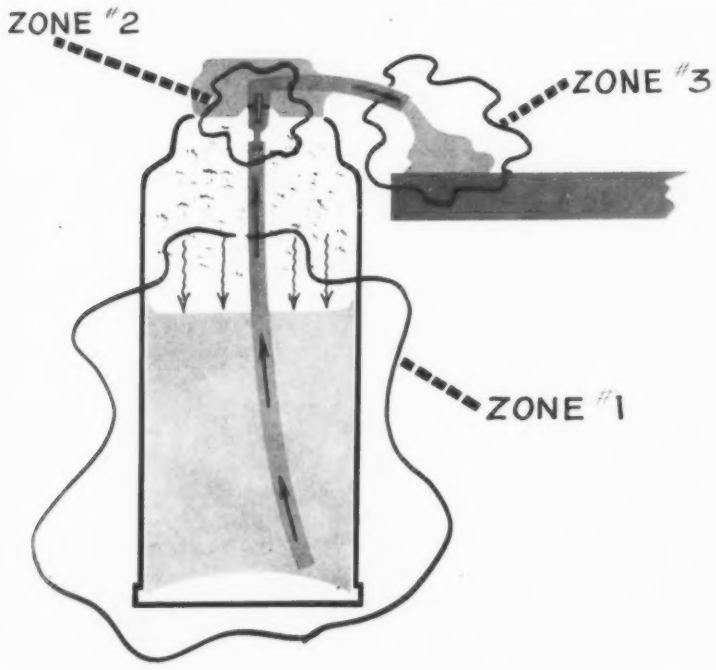
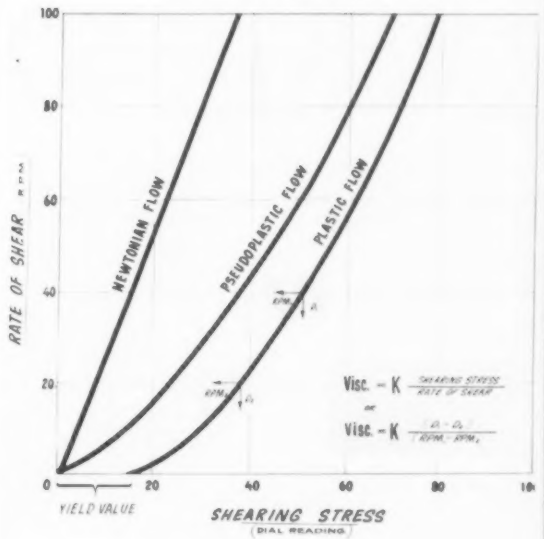


Figure 2. Types of Flow



Summary of Tables II, III, IV

FLOW TIME IN SECONDS AT VARIOUS DRYING INTERVALS

Drying Interval (Min)	Sample C-37	Sample C-37A	Sample C-37B
0	72.6 ± 6.5	70.2 ± 2.2	67.0 ± 5.4
1	69.6 ± 0.9	80.0 ± 5.5	73.8 ± 1.4
2	62.6 ± 0.2	75.2 ± 0.9	79.3 ± 4.9
3	66.0 ± 2.7	71.7 ± 2.3	75.6 ± 0.5
5	71.2 ± 2.9	76.4 ± 2.3	74.3 ± 2.2
7	- -	100.8 ± 4.1	76.2 ± 2.8
8	- -	No flow	104.0 ± 0.8
9	- -		No flow
10	77.3 ± 1.4		
12	No flow		

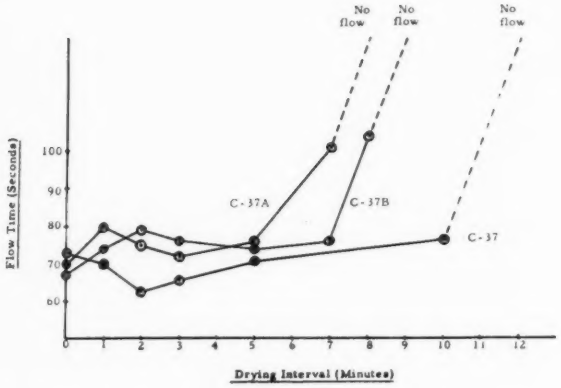
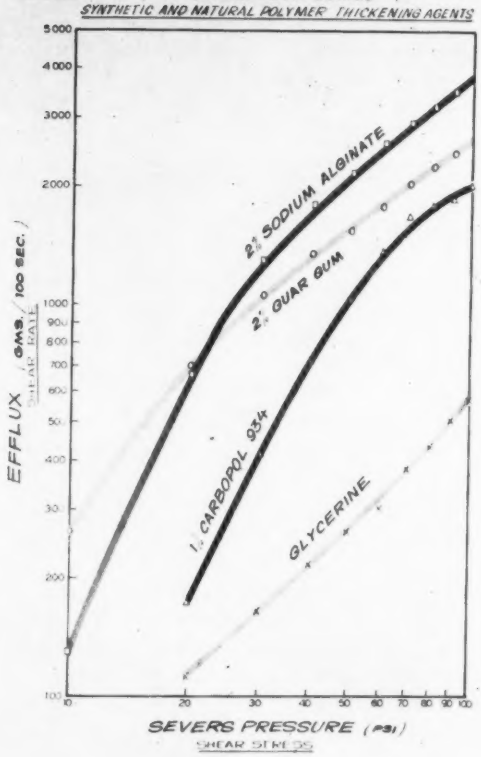


FIG. 6 SEVERS FLOW CURVES

SYNTHETIC AND NATURAL POLYMER THICKENING AGENTS



of "Carbopol 934" solutions.

The characterization of these "solutions" by Brookfield analysis is adequate for the development of commercial formulations where only low shear rates and low shear stresses are involved. For many packages this is the only information needed. In a recent study, plastic flow behavior as measured with the Brookfield has been shown to be a key to the permanent suspension of inert solids as well as providing stabilization of emulsions (4).

It should be noted, however, that these data give no indication whatsoever as to how these polymer solutions will act during exposure to the high shear rate conditions of Zone 2 of the pressure package. In Figure 6 the Severs flow curves for these polymer solutions have been expressed in terms of efflux as a function of shear stress. Note that as the curve rises the sample becomes progressively more fluid. One criterion for effective product behavior is a uniform flow rate throughout the life of a can. This is best represented by the slope of the pressure versus efflux flow curve from 20 psi to 100 psi. Curves of actual shear rate versus shearing stress could be plotted and the apparent viscosity could be calculated at any specific shear rate from the slope of this flow curve. In most cases, however, the Severs efflux data will be more pertinent for pressure-package development.

Examination of Figure 6 reveals that the Brookfield data not only fail to provide indications of high shear rate behavior, but also that any conclusions drawn from these data can be quite misleading. In Table 4 glycerine is shown to be a Newtonian fluid with a constant Brookfield viscosity of 400 centipoises which is by far the lowest of those reported. By contrast in Figure 6 glycerine is shown to have the lowest efflux rate and, therefore, the highest viscosity at all pressures although the viscosity is still 400 centipoises. Under the high operating shear rates of the Severs instrument, the other polymer solutions are seen to have very high efflux rates indicating viscosities much lower than 400 centipoises. By use of the rheological data obtained with both instruments a practical approach to formulation development of commercial products is possible.

Toothpaste Flow Analysis

A series of four commercial pressure-packed toothpastes was selected to demonstrate this method of analysis. A pressure-packed toothpaste must conform to stringent rheological requirements since the consumer has been conditioned by previous packaging to expect little or no flow into the brush bristles on application. Achievement of this objective without excessive viscosity in the can, which would result in cavitation, is aided by use of a formulation exhibiting a high degree of pseudoplasticity or plastic flow properties. A minimum loss of viscosity or yield value as a result of the application of a high instantaneous shear rate in passing through the valve is also desirable.

The Brookfield data on these 4 commercial products (Table 5)

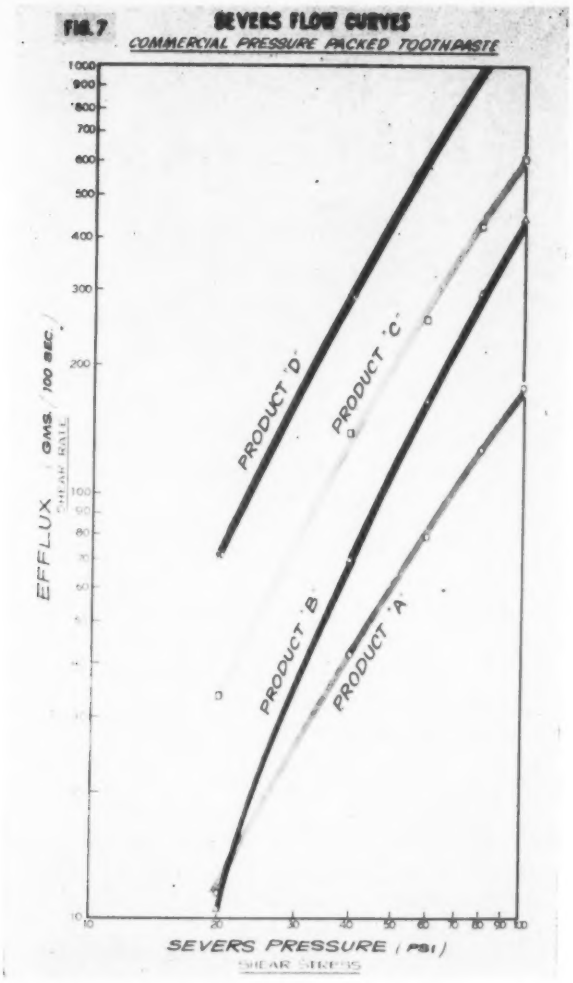


Figure 7

Table 5. Brookfield Rheology of Commercial Pressure Packed Toothpastes

Product	"A"	"B"	"C"	"D"
Brookfield Visc. (cps.)				
@ 0.5 rpm	100,000	114,000	86,000	134,000
@ 1.0 rpm	84,000	107,000	79,000	100,000
@ 20 rpm	34,000	46,750	30,500	20,000
Yield Value	160	70	70	340

Table 6. Per Cent Rheological Loss Due to 100 PSI Instantaneous Shearing

Product	"A"	"B"	"C"	"D"
Shear Rate (Sec.$^{-1}$)	3160	8070	11,600	25,100
Per Cent Viscosity Loss				
@ 0.5 rpm Brookfield	16	14	35	Gain 12
@ 1.0 rpm Brookfield	14	14	35	Gain 10
@ 20 rpm Brookfield	11	9	17	Gain 4
Per Cent Yield Loss	25	14	57	Gain 18

Table 1. Severs Viscometer Calculations

$$\text{Shear Rate} = R = \frac{(K_1)\,(E)}{d} \text{ Sec.}^{-1}$$

$$\text{where } K_1 = \frac{4}{100\ r^3}$$

$$\text{Shearing Stress} = S = K_2 P \text{ Dynes/cm.}^2$$

$$\text{where } K_2 = \frac{6.89 \times 10^4 r}{2L}$$

$$\text{Viscosity*} = V = \frac{K_3\ d\ P}{E} \text{ Poises}$$

*Newtonian

$$\text{where } K_3 = \frac{6.89\ r^4 \times 10^6}{8L}$$

E = measured efflux rate (gm/100 sec.)
d = density of sample in gm/cc
r = radius of Severs Orifice
P = pressure in psi
L = length of orifice = 5 cm.

show them to be pseudoplastic. The high one (1) – rpm Brookfield viscosity as well as the higher Brookfield yield value of Product "D" result in the least penetration of the bristles when applied to the toothbrush.

All four samples exhibit one (1) rpm Brookfield apparent viscosities which are close to 100,000. It would be quite difficult to predict differences in performance of these pastes in Zone 2 based on this measurement alone. In some cases only the Brookfield apparent viscosity at one (1) rpm has been used to evaluate a pressure-packed formulation.

Even a cursory examination of the Severs flow curves in Figure 7 for these four samples indicates that these samples are by no means identical. Product "D" which could be considered an ideal typical paste with a 100,000–centipoise Brookfield apparent viscosity at one (1) rpm is by far the most fluid paste under the influence of a very high shear rate. It also varies most in flow rate from 100 psi "full can" conditions to 20 psi "empty can" conditions which could mean customer rejection of the product.

In Table 6 the importance of the use of both instruments is again shown. The rheological loss from exposure to an instantaneous high shearing rate under the most severe conditions (a single pass through the Severs orifice at 100 psi pressure) is detailed. This rheological loss can result from thixotropic breakdown, changes in pigment and such other factors as thickener dispersion.

Shear rate has been shown to be directly proportional to the efflux rate in Table 1. Since Product "D" is the most fluid paste under the influence of a very high shearing stress, the single pass at 100 psi pressure through the orifice results in a shear rate of 25,100 inverse seconds. This is approximately ten times the 3160 inverse second shear rate applied to Product "A" whereas the one (1) rpm Brookfield apparent viscosity difference in these two polymers in Table 5 is minor.

The rheological losses during extrusion of these products are in general proportional to the applied shear rate with the startling exception of Product "D." Under the influence of the applied shear, Product "D" gained in viscosity at all Brookfield speeds as well as gaining additional yield value.

This is valuable in the case of a toothpaste in Zone 3 where the

(*Turn to Page* 107)

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PLASTICIZERS in Polymer Floor Finishes

By **Harold Naidus, Henry Merken, Henry M. Szczepanik***,

Polyvinyl Chemicals, Inc.
Peabody, Mass.

SINCE the relatively recent transition of emulsion floor polishes from blends of wax and alkali soluble resins to those containing emulsion polymers, a number of additional technological principles have become of prime interest to producers of waxes and floor polishes. Among them is the question of plasticization, which was of little concern prior to the advent of emulsion polymers. Plasticization is an important factor in the development of polymer-based floor polishes and polymer producers must have a sound working knowledge of this subject for it can markedly affect polymer performance in floor polishes.

Of the two major emulsion types in use, the acrylics do not usually require plasticizer and thus will not be discussed, whereas the polystyrenes generally perform best in floor polishes after plasticization. The effect of plasticizing a representative commercial polystyrene emulsion will, therefore, comprise the major emphasis of this presentation. As was indicated in a prior paper (1), the emulsion polymers are highly complex systems which the formulator utilizes essentially without modification, since the emulsion is supplied as a balanced entity. In addition to working with such components as waxes and alkali soluble resins, one area in which the formulator has good opportunity to modify the floor finish is by the addition of one or more plasticizers. Greater knowledge of plasticizer-polymer interactions permits development of improved emulsion polymers and better floor finishes. A study of plasticization of polymer emulsion floor finishes, therefore, has been undertaken and is the subject of this presentation.

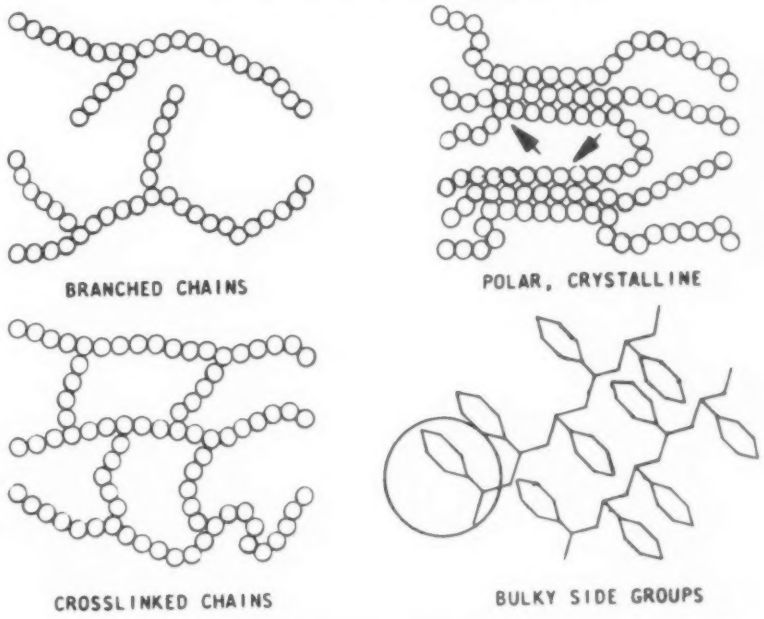
Theory of Plasticization

A polymer is a long chain molecule generally containing from 1000 to 10,000 of the original monomer units. It has many forces acting upon it which are much larger in total effect than those similar forces which are exerted in small molecules such as sugar, salt or soap. These forces may lead to immobilization or loss of flexibility in the polymer molecules. Some of these types of interferences are listed below and illustrated in Figure 1.

1. *Crosslinking* will tend to reduce the polymer mobility. In general, the shorter the crosslinking chain and the greater the number, the less flexible will be the polymer.

2. *Highly polar or oriented polymers* may crystallize in certain areas, thus reducing the flexibility of the polymer.

Figure 1. Examples of immobilizing structures.



*Paper presented during 45th midyear meeting, Chemical Specialties Manufacturers Assn., Chicago, May 19, 1959.

(1) Emulsion Polymers for Floor Finishes, *Soap and Chemical Specialties*, August, 1958.

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tain areas by chain interaction involving secondary valence forces.

Polymer chains containing bulky side groups or branches tend to interfere with one another and thus lower flexibility.

Crosslinking immobilizes the polymer chain by a primary atom to atom linkage, and the crosslinked polymer is usually not susceptible to softening or flexibilizing by a plasticizer. The other three types of interference respond readily to the addition of plasticizers.

Highly polar polymers, such as cellulose acetate, cellulose nitrate, carboxymethyl cellulose and methyl cellulose permit diffusion of the plasticizer to individual polymer molecules. If suitably chosen, the plasticizer will itself interact and solvate the polar polymer molecule to exclude interactions by other polymer units. Highly polar materials, such as glycerine or even water, are excellent plasticizers for most cellulosics, having greater affinity for the polymer polar units than the polar units in the polymer chains have for each other.

When a plasticizer is added to a polymer which is hard and inflexible because of its bulky side groups or branches, it diffuses between the polymer molecules and the chains separate to a point where they can move freely. Polystyrene requires a definite quantity (about 25-35%) of plasticizer before becoming soft and flexible enough to be a flexible film former when deposited from emulsion. However, in polystyrene based floor polishes not nearly so much plasticizer is required. The optimum degree of flexibility or separation of the polymer chains is reached with appreciably lower amounts of plasticizer.

Thus, each polymer type shows optimum response to specific amounts and classes of plasticizers. Wrong plasticizer choices will often show up as gross incompatibilities, as evidenced by haze in the polymer film or "bleeding" of the plasticizer as an oil on the surface of the polymer film.

In aqueous blends of materials containing a polymer, the relatively low molecular weight plasticizer generally "searches out" the polymeric material with which it is most compatible by diffusion throughout the blend. This is exemplified in water-based paints in which polymer emulsions are intermixed with colloids, preservatives, salts, and pigments. When added as the last component of the paint makeup, the plasticizer associates with and flexibilizes the polymer constituent.

As is well known in the industry, there are at least two acceptable ways of carrying out the necessary plasticization of polystyrene based floor finishes:

1. Addition of plasticizer directly to the polystyrene emulsion with subsequent dilution and blending;

2. Addition of plasticizer to unplasticized floor finish formulations.

It has been verified in our work that in the second method, the plasticizer ultimately diffuses throughout the mixture and functions as it does in the first method. Moreover, no time factor has been observed. Both methods gave good results one hour after plasticization and no change was noted after five weeks.

In the data to be presented, both methods have been used. The floor finish formulation used to obtain the data throughout this paper is given in Table 1.

All ingredients were prepared at 15% solids except the plasticizer.

Relative effect of plasticizer quantity on performance of polymer floor finish: The polystyrene emulsion under test was plasticized by direct addition of a 1/1 blend of dibutyl phthlate (DBP) and tributoxyethyl phosphate (TBEP) (6) in three weight-percent increments to a total of 21 weight-percent based upon polystyrene solids. The following evaluations were then made:

1. Gloss
2. Leveling
3. Recoatability
4. Removability
5. Water spot resistance
6. Freeze-thaw and oven stability
7. Soil and black heel marking resistance

The tests were run by the

(*Turn to Page* 89)

Table1. Standard Floor Finish Formulation

Material	Trade Name	Pts. by Weight
Polystyrene emulsion	NeoRez ST[2]	70
Polyethylene emulsion	Epolene E[3] or AC629[4]	10
Alkali soluble resin	Durez 15467[5]	20
Plasticizer	(Varied)	0-2

(2) Polyvinyl Chemicals, Inc.
(3) Tennessee Eastman Corp.
(4) Semet-Solvay Divn., Allied Chemical Corp.
(5) Durez Plastics Divn., Hooker Chemical Corp.

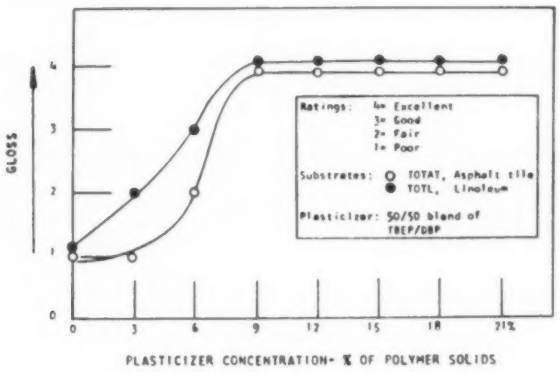

Figure 2. Effect of plasticizer quantity on gloss.

(6) KP-140, Ohio Apex Divn., Food Machinery & Chemical Corp.

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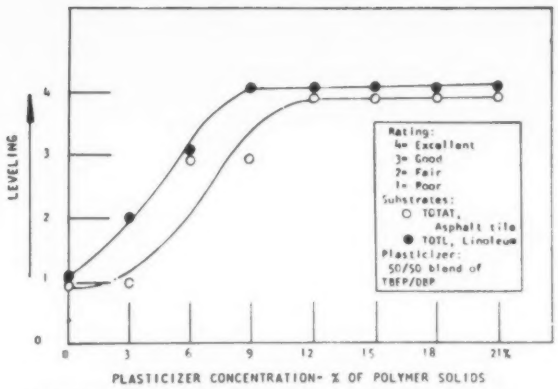


Figure 3. Effect of plasticizer quantity on leveling.

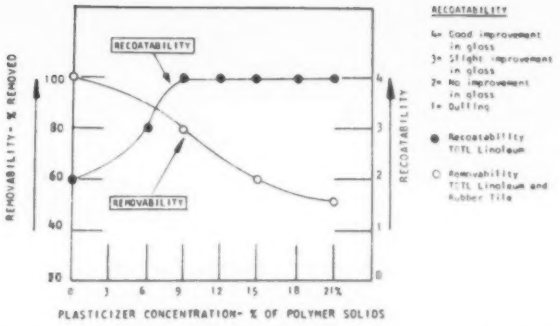


Figure 4. Effect of plasticizer quantity on removability and recoatability.

(*From Page* 83)

generally accepted techniques which are given in the appendix.

All of the performance properties of the floor polish formulations were significantly affected by the concentration of the plasticizer blend. Figure 2 shows the effect of plasticizer concentration on gloss on both TOTAT and TOTL. *The gloss* is markedly improved by relatively small increases of plasticizer up to a level of approximately 9 to 12 weight-percent. Further increases had no apparent effect on the gloss.

Leveling was also greatly improved by increasing the plasticizer concentration and the results of these tests were rather striking, as shown in Figure 3. It is not surprising to note that slightly higher plasticizer concentrations are required on TOTAT to give leveling properties equivalent to that on TOTL. TOTAT is a more porous substrate than TOTL and if vinyl or rubber tile had been used in this test, the plasticizer requirements would probably be slightly different for these substrates.

Recoatability and removability are often thought of as "competing" properties; i.e. to achieve the ultimate with one property, sacrifices in the other must often be made. The effect of plasticizer levels on both of these properties is shown in Figure 4.

These results might be predicted if the plasticizers are thought of as providing a tighter, more closely-knit film. Such films should tend to have greater resistance to removal and resistance to "lifting" by the second polish coat.

Water spot resistance is affected by the plasticizer concentration but is also dependent upon the length of time the polish is permitted to dry before the test is made. After the first hour, polishes containing small amounts of plasticizers appear to be slightly superior to those containing large amounts. After 24 hours drying, water spot resistance is definitely improved by increasing the plasticizer content. After the polish film has been allowed to dry for 48 hours, the water spot resistance is also improved as the plasticizer concentration is increased. However, the effects are not nearly as marked as with the 24 hour study. The anomaly observed with the one hour study has not been explained. Figure 5 shows the results after 24 and 48 hours drying.

Oven stability (125°F) and *freeze-thaw stability* of the above formulations were also checked. After 28 days all samples which had been placed in the oven were apparently unchanged. All of the samples passed seven freeze-thaw cycles with the exception of the sample containing 21 weight-percent plasticizer which failed on the third cycle. The conclusion can be drawn that in the type of formulation tested both the oven and freeze-thaw stabilities are relatively unaffected by plasticizer concentration. In formulations containing high percentages of plasticizer, however, it would be best to check carefully the freeze-thaw stability.

Figure 5. Effect of plasticizer quantity on water spot resistance.

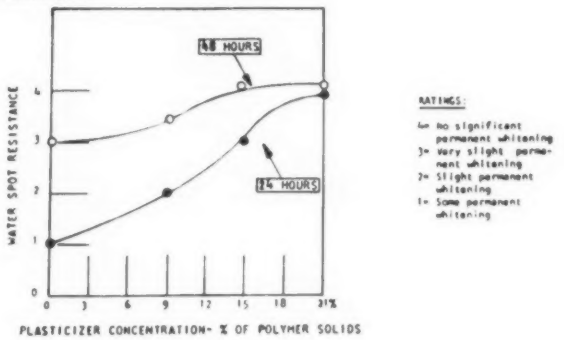
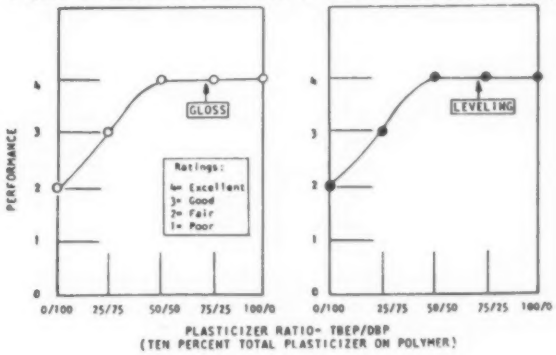
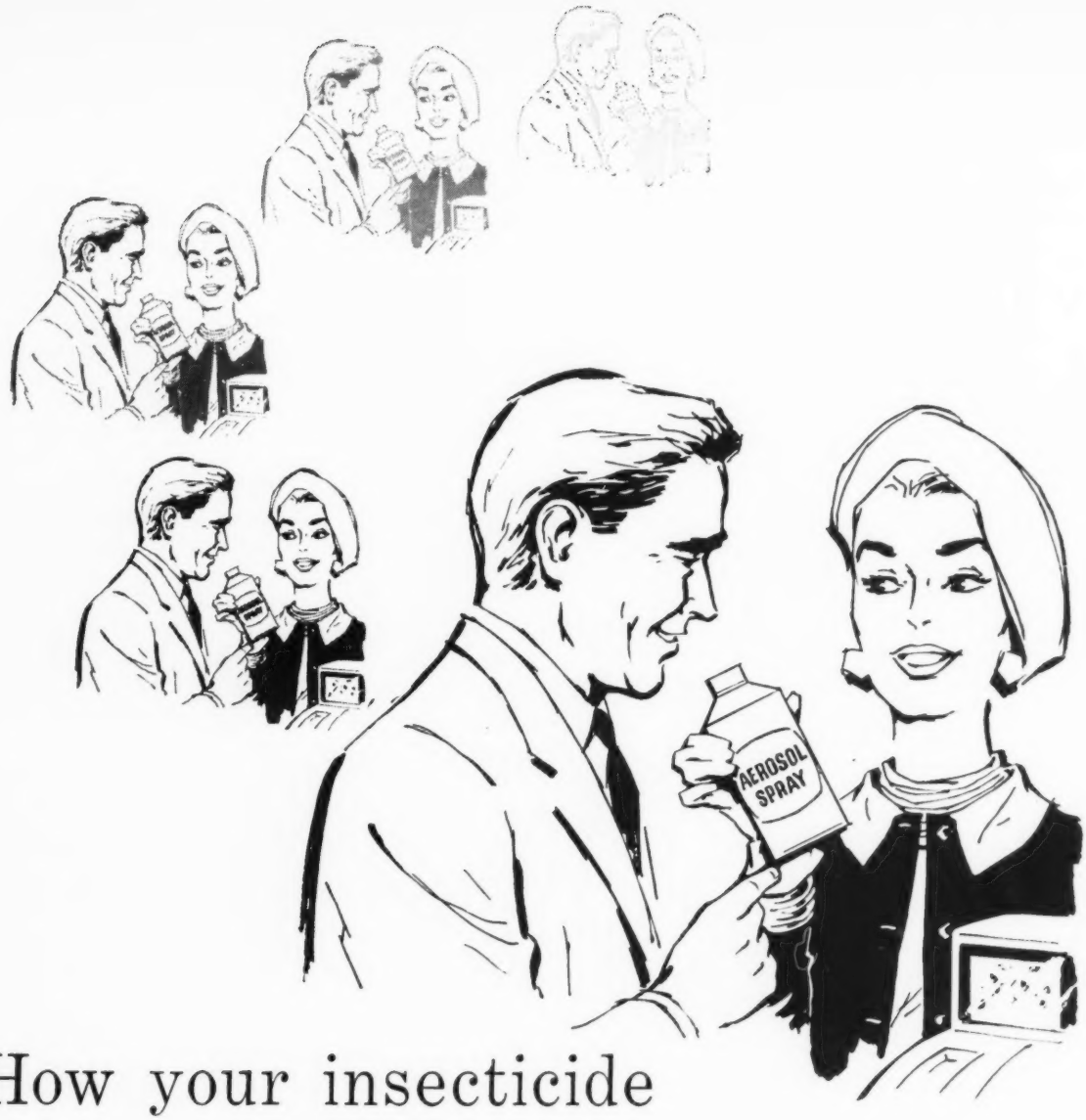


Figure 6. Effect of TBEP DBP ratio on gloss and leveling.





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In traffic tests, the results clearly showed that increasing the plasticizer concentration increased the soil pick-up and black heel marking. Best results were obtained with formulations containing no plasticizers but such formulations were highly unsatisfactory in other critical performance properties such as gloss and leveling.

'*Relative effect of variations in TBEP/DBP ratio on performance of polymer floor finish*: In this series of tests the same formulation cited in Table 1 was used. The plasticizer concentration was maintained at 10% of the weight of the polystyrene and the TBEP/DBP ratio was varied over a range of 100/0, 75/25, 50/50, 25/75, and 0/100.

Several interesting results were noted in these tests. *Both gloss and leveling* are significantly improved and to about the same degree by increasing the ratio of TBEP to DBP. Figure 6 shows the results which were obtained on both TOTAT and TOTL.

Water spot resistance is improved with increasing DBP proportion. Figure 7 shows the results on TOTL after 24 and 48 hour drying of the polish film. After drying for one hour, the water spot resistance was apparently unaffected by variations in the TBEP DBP ratio.

In traffic tests, it was noted that increase in the TBEP DBP ratio gave improved black heel marking resistance. The results of these tests are difficult to illustrate graphically; floor tests in heavy traffic are not measured by precise means. However, the data were qualitatively most impressive, relatively few anomalies were observed, and these conclusions could be clearly drawn: Increasing the TBEP gave better soil resistance; increasing the DBP gave better black heel marking resistance.

Recoatability seemed relatively unaffected by variations in TBEP/DBP ratio. These results were rather surprising. The results of the other tests in this series indicated that an increase in the TBEP concentration might help to plasticize the alkali soluble resin present. This should result in a "tighter" film which might adversely affect the removability and help the recoatability. *Removability* was definitely improved as the DBP portion was increased but no improvement in recoatability was noted as the TBEP portion was increased.

Freeze-thaw and oven stability were not affected by changing the ratio of TBEP to DBP.

Blends Most Effective

It would appear from these results that a blend of plasticizers is more effective in providing a floor polish of the best overall performance properties than either individual plasticizer. Such results might not be expected but they appear quite logical if we consider that each plasticizer may be contributing in a different manner. For example, if DBP and TBEP have unique plasticizing effects upon individual components in the floor finish, the results obtained fit a definite pattern. It is known DBP and TBEP do not exhibit comparable compatabilities for polystyrene or alkali soluble resins. DBP exhibits very good compatability with polystyrene, whereas TBEP shows better compatibility with the alkali soluble resins. Thus, both types of materials in the floor finish may require some plasticization for best overall results. Based upon this qualitative reasoning, it could be anticipated that an increase in the level of the plasticizer for the alkali soluble resin would tend to decrease removability of the floor finish by improving the film forming qualities of this constituent. Thus, it would be rendered less susceptible to aqueous alkaline attack. As stated previously it has been shown experimentally that an increase in the TBEP/DEP ratio, (while maintaining a constant total plasticizer level) does decrease the removability of the standard floor finish. Under the same conditions gloss, leveling and soil resistance were also improved.

Other plasticizers in polystyrene floor finishes: In order to present a more rounded picture, a variety of additional plasticizer types and classes were evaluated in an exploratory manner. Based on the data discussed previously, a 1/1 mixture of TBEP and DBP was used as the standard. Substitution of different experimental plasticizers were made for either the TBEP or DBP in the standard floor finish formulation shown in Table 1. In general, the phthalates and other more oil soluble plasticizers were substituted for the DBP, while making no change in the TBEP. The phosphates and water or alkali sensitive types were generally substituted for the TBEP, while maintaining the DBP portion of the blend. Table 2 lists the materials tested, all of which are stable in the floor finish for 30 days at 125°F. An attempt was made to include solid and resinous plasticizers in addition to other liquid monomeric types.

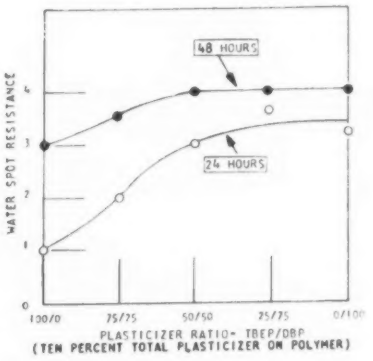
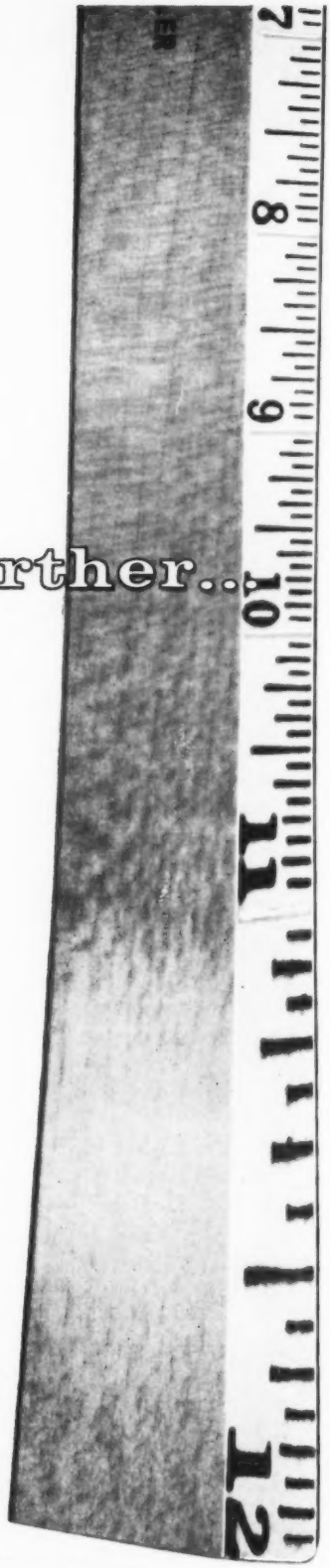


Figure 7. Effect of TBEP DBP ratio on water spot resistance.



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Interestingly enough, most of these materials showed reasonable performance properties. Some observations are worthy of specific note.

No replacement for TBEP contributed as greatly to the good leveling, gloss or recoatability of the floor finish.

No deficiencies were observed in the replacements for DBP and, in fact, all seemed to improve the recoat qualities. They appear to be worthy of further study.

The water soluble plasticizers did not appear to have good general performance characteristics but, surprisingly, did not adversely affect the water spotting characteristics, as might have been expected.

Conclusions

Several conclusions appear to be warranted from the results of this study:

1. The optimum amount of total plasticizer content was found to be in the range of 10-12%, based upon the polystyrene solids.

2. Increasing the total plasticizer content tended to improve the gloss, leveling, recoatability and water spot resistance of the polymer floor finish.

3. Decreasing the total plasticizer content tended to improve the removability, soil resistance and black heel marking resistance.

4. A blend of TBEP and DBP gave a floor polish of better overall performance properties than either plasticizer alone.

5. TBEP was shown to contribute markedly to the gloss and leveling qualities of the floor finish. It also appeared to improve the soil resistance and in general, to aid recoatability, as compared with its replacements.

6. DBP apparently directly aids removability, black heel marking resistance and water spot resistance.

It is hoped that the data and discussion presented in this paper will prove of value in the formulation of improved floor finishes based upon polymer emulsions and will afford some additional insight into the factors governing their plasticization.

Table 2. Plasticizer replacements in 1/1 TBEP/DBP blend used in standard floor finish

Replacement for DBP	Replacement for TBEP
Dimethyl phthalate	Tributyl phosphate
Dicarbitol phthalate	Tricresyl phosphate
Butyl benzyl phthalate	Triphenyl phosphate
Dibutoxyethyl adipate	Plastolein 9715 (7)
	Butyl Cellosolve (8)
	Hexylene Glycol

(7) Emery Industries, Inc.
(8) Union Carbide Chemicals Company

Appendix

A. *TEST PROCEDURES*

1. *GLOSS* – Drawdowns for each polish are made on test tiles with a wire-wound rod (#12) to insure obtaining films of exactly the same thickness. The gloss is observed visually and/or by measurement with a 60° Photovolt Glossmeter.

2. *LEVELING*—Each polish is applied to the test tiles with a plush swab, using slightly overlapping strokes. Wet leveling (spreadability) and dry leveling (absence of streakiness and ridging) is observed visually.

3. *RECOATABILITY* – Each polish is applied with plush applicator to the test tiles. The tiles are allowed to dry ½ hour and the second coat is then applied. Observations for the re-emulsification or lifting of the first coat and whitening are made during application of the second coat. Gloss and dry leveling of the dried panel are also noted.

4. *WATER SPOTTING*– After polish film has dried on the test tile for the specified time, one ml. of distilled water is placed on a portion of the tile. After ½ hour, the water is gently wiped away and observations are made for film removal and any whitening which is not eliminated by light buffing.

5. *SOIL RESISTANCE AND WEARABILITY*—Two coats of each polish are placed on the test tiles with a plush swab applicator. The tiles are then placed in a heavy traffic area with double face pressure sensitive tape. After 2 weeks or more when soil resistance and wear have become significant, the tiles are examined both before and after damp mopping.

6. *REMOVABILITY* – Drawdowns for each polish are made on the test tiles with a wire-wound rod. After aging 24 hours, at 125°F., each tile is given 75 strokes on a Gardner washability machine using 1% Tide solution. The percent of film removed is noted.

8. *FREEZE-THAW STABILITY*—A 4 ounce sample of each polish is allowed to freeze @–10°C for 16 hours, then allowed to thaw at room temperature. It is then examined for change in viscosity, opacity and gloss, or for irreversible gelation or coagulation.

9. *ACCELERATED AGING TEST*—Each polish is aged @ 125°F. for a period of one month and examined for irreversible gelation, sedimentation, change in viscosity, opacity or gloss on standard test tile.★★

—★—

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Space Age Sales Contest

"Atomic Space Rocket National Sales Campaign" of G. H. Wood & Co., Toronto, soared over quota by 16.4%, opened 2,000 accounts.

A LITTLE over a month ago there concluded in Canada probably the most unusual and certainly the most successful sales campaign in the series of novel and profitable annual contests staged by G. H. Wood & Co., Toronto. The firm is one of the largest distributor-manufacturers of sanitary and maintenance supplies and equipment in Canada.

Pushing one step closer to the space age, the 1959 "Atomic Space Rocket National Sales Campaign" of G. H. Wood & Co. blasted off April 27. At 8:00 a.m. on that date 18 space rockets, all numbered and code named, took off from a like number of "Canadian operational bases." In charge of each rocket was a "space captain" (branch manager) and "crew" (branch salesmen) consisting of "space rocket navigator, atomic engineer, TV/Radar-scope and other operational officers." The rockets represented branch offices or district headquarters offices of the 35 branches operated by Wood throughout Canada.

Each of the 18 rockets or branches was competing for cash awards of over $5,000, plus gold plated replicas of the winning space rockets. Cash awards were given for the best showing in weekly "flights", plus the grand award winner who was first in the most weekly "flights."

This highly imaginative sales contest got under way with an electronic count-down from Chalk River, Ont., Canada's atomic research center. In the days and weeks following the "blast-off" of the contest until its conclusion on June 27th, one or more messages were mailed daily to all sales personnel and "officers" (key employees) from "earth headquarters" (Wood's main headquarters in Toronto). Messages were mailed out on "TV/Radarscope Beamed Message Cards" of light blue, dark blue, yellow, pink or peach colors. Pertinent messages, some in a jocular vein, were used to report standings at the end of each nine weeks and the cumulative total for the complete nine weeks.

The "props" used to stimulate and maintain interest in the contest on the part of both Wood personnel and customers this year, as always, are clever and imaginative. Included were miniature space rockets, about five and one-half inches long and individually boxed; Rand McNally full color maps of outer space and gold plated rocket lapel buttons or (for the ladies) brooch buttons. In addition there was an "official schedule" which gave details of the contest and listed the names of the 18 rocket ships and their crews, as well as listing the names of the 68 "officers" at "earth headquarters" and their various ranks.

Another innovation was a group life insurance policy in the amount of one million dollars taken out by G. H. Wood & Co. on the lives of its sales representatives for the duration of the contest.

GEOFFREY H. WOOD

For the Laggards: A trophy. As this year's stimulant G. H. Wood & Co. mailed the space rocket captain who finished last in any of the nine week heats the "Tail Dragging Space Rocket."

Finally, as always, for the laggards Wood again this year came up with a stimulant. Each space rocket captain whose rocket came in last in any of the individual nine weeks flights received a "Tail Dragging" space rocket trophy, a photograph of which is reproduced with this article.

A "substantial" quantity of the Rand McNally "Universal Map of Outer Space" measuring 33 x 42 inches, were sent out to Wood salesmen to pass along to their customers. Also given to salesmen to present to their customers as souvenirs of the campaign were over 25,000 miniature rockets. Thus, through the use of the map, schedule and souvenir rockets, as well as question-evoking gold lapel pins worn by Wood salesmen, customers were kept aware of the competition.

Other gimmicks designed for the campaign included a colorful certificate issued to each space man "who has qualified for the honor by successfully participating in the 1959 Wood's National Sales Campaign." The "Certified Space Man" certificate, printed on a yel-

(*Turn to Page* 101)

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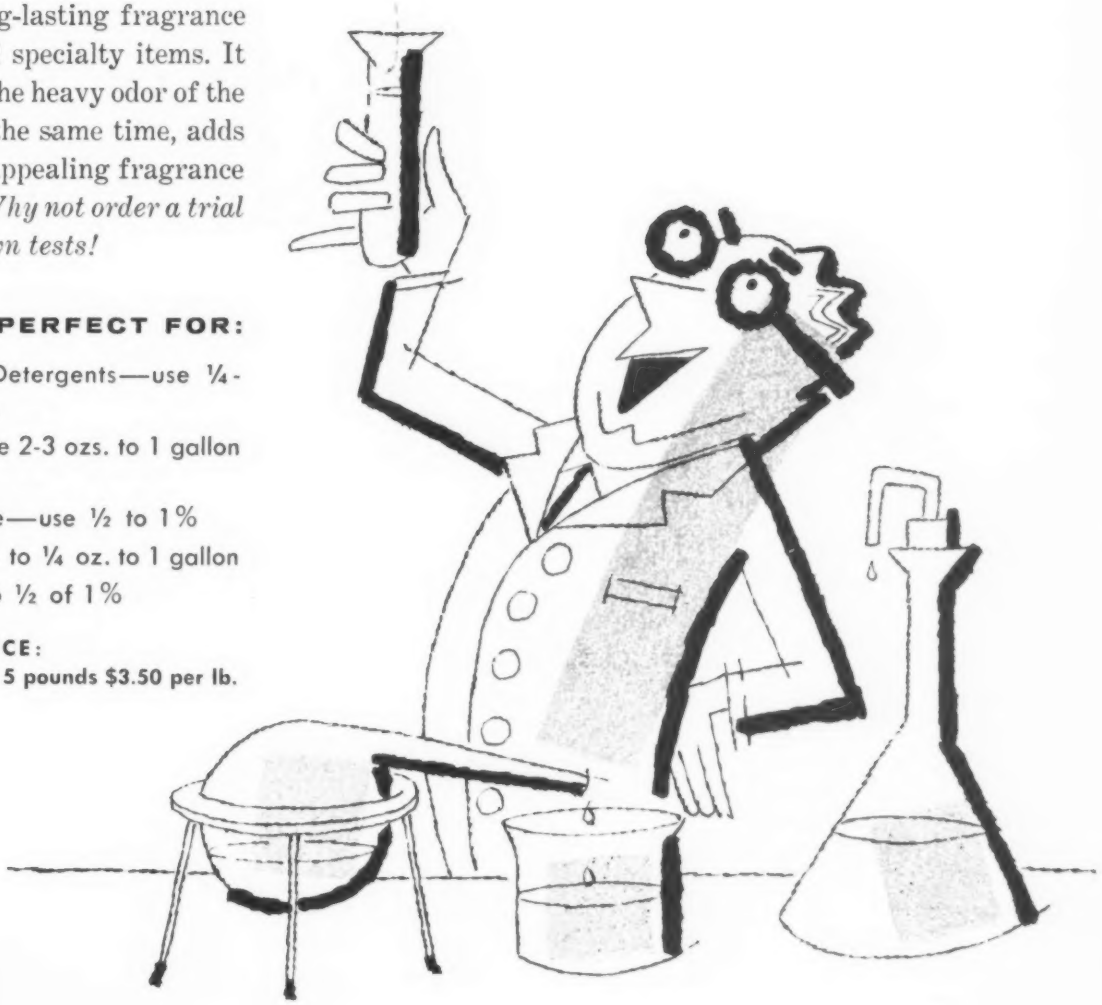

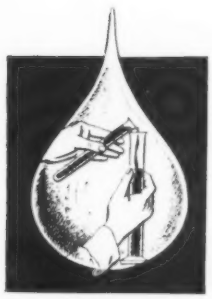

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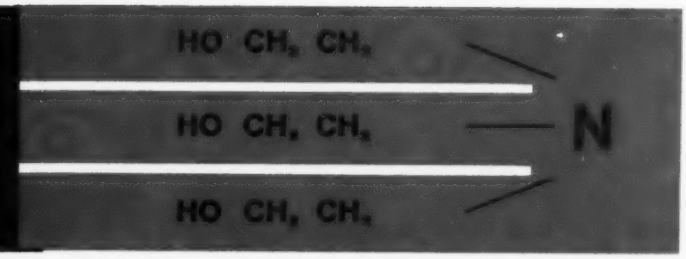

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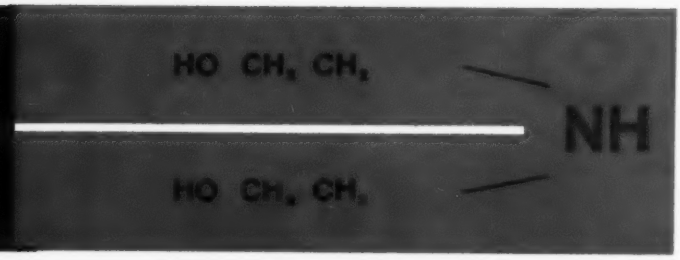

DON'T OVERLOOK

mono

It won't hold for everybody, but in some applications where di- or triethanolamine is being used, there are positive advantages to be gained from switching to mono-. For example, MEA can frequently be used advantageously as the amine in amine soap emulsifiers for such products as cutting oils, weedicides, waxes and buffing compounds. In some instances total amine required is reduced to the extent that cost is reduced. In some cases mixtures of MEA and TEA are better than either alone. MEA may improve performance while TEA maintains a lower pH.

If your product or process now utilizes DEA or TEA, it may pay you to evaluate MEA. Allied makes all three, and will give you technical suggestions that may help you reduce costs, improve efficiency or make a better product. Write for any technical assistance you need.

For specifications and local offices, see our insert in Chemical Materials Catalog, pages 435-442 and in Chemical Week Buyers Guide, pages 35-42.

BASIC TO AMERICA'S PROGRESS

Allied Chemical

NITROGEN DIVISION

Dept. EA 8-27-2, 40 Rector St., New York 6, N. Y.

2819

(*From Page* 97)

low background, featured the fanciful figure of a green masked space man wearing pink trousers and red boots. The name and code number of the rocket ship to which the participant was attached was also given. Names of the rocket ships read like something out of the "Racing Forum": "Galuptious", "Dibble-Dabble", "Bambush", "Ki-Bosh", "Chattermag", "Ods Bodkins", "Flim-Flam", "Chickabiddy," "Quock Wodger", "Hickery-Pickery", "Mentisental," "Screecher", "Kickeraboo", "Pandemonium", "Splendacious", and "Catawampus."

Officers at "earth headquarters" and the titles by which they were addressed for the duration of the sales contest, include: Geoffrey H. Wood (president and general manager), "Space Rocket Marshal"; W. E. 'Al' Vaughan, "Space Rocket Vice-Marshal"; Harold L. White, "Space Rocket Sales Planning Commander"; L. M. "Marsh" Reese, "Space Rocket Eastern Division Commander"; E. M. MacAuley, "Space Rocket Central Division Commander"; J. R. Ralph Sowerby, "Space Rocket Mid-Western Division Commander"; Wilbur C. Werthner, Space Rocket Pacific Division Commander" and A. C. Olmsted, "Space Rocket Chief TV/Radarscope Communicator".

The final touch, or possibly it is higher in the standings than that, is the display of rockets and other material announcing the campaign on the Wood headquarters building on Queen Elizabeth Way in Toronto.

Winner of this year's contest was Hal Kemm, of Wood's Calgary office, who rolled up a "spectacular" total of 118,060,000 miles. Runner-up was space rocket team captained by Joe Martel of the Quebec City office, with 117,760,000 miles, a mere "wink", as space travel goes, behind the winner. Charles Taylor, Montreal, finished third and Peter Ferguson of Toronto, was fourth.

In summing up, Geoff Wood, the dynamo and chief idea man, who happens to be president of G. H. Wood & Co., said: "This . . . was the most outstandingly successful sales campaign we have ever had . . . last year established a new record, but this year we went 16.4% over our very high quota. So, all in all, our salesmen were not only rewarded with some excellent cash prizes, but collectively, they earned approximately $29,000 in additional commissions.

Rocket bedecked headquarters of G. H. Wood & Co. in Toronto, advertise the campaign and stimulates all employees to participate.

To Mr. Wood, one of the most interesting aspects of the campaign was that his salesmen opened up over 2,000 new accounts in the nine week period, and that "definitely topped all previous records."

Mr. Wood is justifiably proud of the fact that his firm runs its campaigns in their entirety from the Wood office. He says: "We believe that we can dream up better ideas—more suitable to a good reception by our men—than might otherwise be the case."

Who can argue with the guy?

—★—

New Reichhold Stock Issue

A new issue of 100,000 shares of $1 par value common stock of Reichhold Chemicals, Inc., White Plains, N. Y., was placed on the market last month by an underwriting syndicate. The stock was priced at $30.25 per share. Approximately $10 million of the net proceeds will be applied to the company's two-year construction program which includes additional facilities in Elizabeth, N. J., Tuscaloosa, Ala., and Houston, Tex. The company, which operates 16 plants in the United States, had net sales of $30,568,000 and a net income of $1,032,000 for the four months ended April 30, 1959 compared with $21,792,000 and $631,000 in the similar period a year earlier.

New Labeling Laws

(*From Page* 56)

long); as to what the flow of air or number of rats should be per unit volume in inhalation tests; or the area covered, and the diluting or suspending agent in skin toxicity tests.

But whatever the precise wording of the final bill, it seems likely that the actual tests will be pretty much the same as those which have evolved from past toxicological research. The aspects yet to be agreed upon, aside from details of test methods such as those outlined above, are what warning words or insignia will be required on labels of hazardous substances. Clearly it would be a mistake to force makers of household specialties which have been found toxic only under out-of-the-ordinary

circumstances to label their products "poison." This, like the boy who cried "wolf", would lessen the effectiveness of the warning. More in order, I think, would be a label which simply suggests caution—for example, a raised forefinger.

Nobody should feel confident that any such law will immediately eliminate hazards to children resulting from imbibing household products. All that it could do would be to minimize such dangers. As always, much responsibility will rest with parents. According to a recent survey 68 per cent of poisoning cases occurred when the product was not in its usual place and 36.5 per cent when it was not in its original container. The manufacturer can give parents sufficient information so that they can act intelligently, taking care to keep properly labeled products out of the childrens' reach. Inevitably, children, no matter what laws are enacted, will be poisoned. When that happens, the only thing that can be done is to get the proper antidote information to the doctor. This is the worthwhile function of the growing number of Poison Control Centers which are now being established throughout the country.

With the cooperation of industry, they keep confidential files of the ingredients of household specialties, and are able to supply emergency antidote information to physicians.★★

Perfuming Detergents

(*From Page* 45)

record any possible signs of change in odor, discoloration or other indications which would show that it is not sufficiently stable. The temperature of 42°C. is selected because it is the average summer temperature in the United States. Detergents for export should be tested at temperatures prevailing in the countries in which they are to be marketed. Withstanding temperatures in laboratory ovens for several weeks by no means demonstrates that the perfume composition is satisfactory. Such a test merely shows that the perfume has passed the preliminary requirements. The only method which is fool-proof is shelf-testing for long periods of time—six months usually are considered the minimum. Prolonged shelf testing can yield unreliable results unless all conditions exactly duplicate those under which the product is to be marketed.

In one case with which we are familiar a perfumed detergent was tested for six months, but in glass jars instead of in the packages in which it would be marketed. Since the actual packages were not airtight as were the glass containers, the ordinary atmospheric oxidation of the perfume had never been tested in the laboratory, and thus the results were disappointing.

Extensive research carried out at Massachusetts Institute of Technology by Karel, Proctor and

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Cornell (4) indicates the various problems involved in packaging. While their work was concerned with flavor permeability in food packaging, the general principles involved can be applied to the packaging of detergents and many other products.

The total output of synthetic detergents and soaps in the United States is now over four billion pounds annually, three quarters of which are synthetics. As a rule, the industry considers those packed in containers of over twenty-five pounds as being directed into industrial channels (bulk products); the balance being intended for household use. It is estimated that about 80 per cent of the detergents manufactured in this country find their way into homes; this represents almost two and one half billion pounds each year. It is hardly possible to arrive at a figure for the volume of perfume materials used for detergents but one can hazard a guess. While some detergents are highly perfumed, others are only slightly perfumed so that an average taken at 0.2 per cent would not be far fetched. This would indicate a consumption of about five million pounds of perfume materials used for detergent products in the United States.★★

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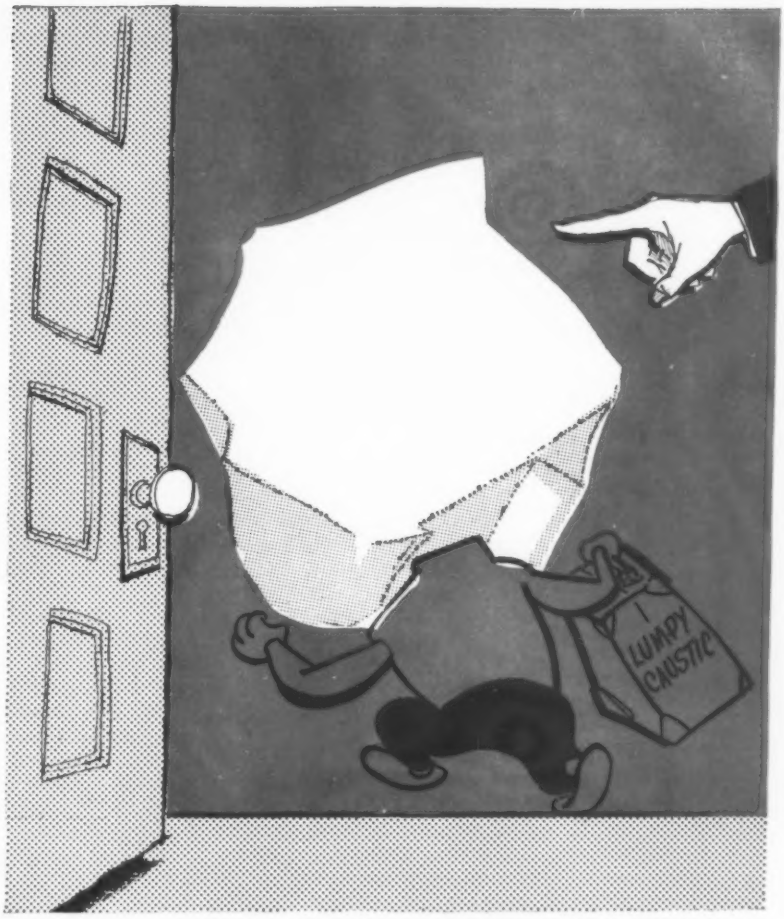
*Although this work is not concerned with the subject of perfuming detergents, the writer wishes to call attention to it because it mentions the use of detergents in a modest field—that of the atomic energy.



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	Sulfonate LC	Sulfonate OS
Sulfonate content, min % by wt	62.5	60
Avg mol wt as sodium sulfonate	445	445
Water content, % by wt	3.5	3.5
Inorganic salts, % by wt	0.51	0.7
Mineral oil content, % by wt	34.4	34.4
Color, ASTM Dilute	3½	5+
Viscosity, SUS at 210 F	1200 approx	1200 approx
NaOH, % by wt	Neutral	Neutral
Specific Gravity, 60/60 F	1.03	1.02
Approx weight per gal	8.6	8.5

Other Sun petrochemicals: Anhydrous ammonia, benzene, toluene, xylene, Sunaptic® (naphthenic) acids, propylene trimer, propylene tetramer, PDO-40 (petroleum drying oil), sulfur.
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MAKERS OF FAMOUS CUSTOM-BLENDED BLUE SUNOCO GASOLINES

Fabric Pest Control

(*From Page* 68)

mills, with the aim of providing life-long insect-proofing. Such a technique, using an insecticide, has been employed by investigators working for the Shell Chemical Co., who have permanently impregnated small amounts of one of their formulations into fabrics during the dye-vat process. In spite of repeated dry cleanings these chemicals remain effective.

An explanation of the principle of dye-vat process should be prefaced with a discussion of the histology of natural hair fibers. A microscopic study of the cross-section of a single strand of wool reveals that the fiber is composed of three parts. The keratinous cuticle is made up of close-fitting scales. Beneath this scaled covering lies a softer, inner layer called a cortex, while the core-like center is called the medulla. Each of these structures contains its individual chemistry. During the dye-vat treatments the boiling liquids cause each outer scaled surface to soften, allowing a penetration of the solutions. Through these temporary openings antimetabolites are permitted to enter the inner structures of each fiber. The "fixing" procedure is always followed by treatment with cooler liquids. As the temperature is lowered, the scaled cuticle "closes," locking in dyes and inhibitors. One must be aware that woolens should never be cleaned in hot water. This precaution assures that the chemicals will be "locked in" to stay for the life of the fabric.

The present studies on impregnating antimetabolites into hair fibers are encouraging. Preliminary experiments have shown that some inhibitors are not appreciably removed by three consecutive dry-cleanings using 99.9 per cent pure carbon tetrachloride and chemically pure benzene. These are of a more highly refined quality than the less expensive solvents used by commercial dry-cleaning establishments. However, many trials have yet to be run in order to determine how effective the use of various antimetabolites will be, and how long they will last under the severest of cleaning processes.

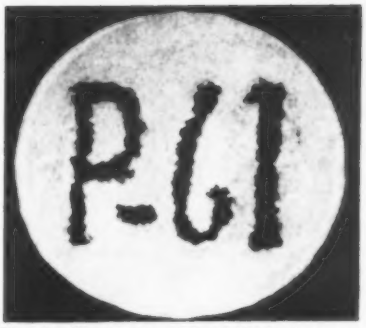

Fig. 6. Illustrating "shelf-life" of aqueous mixture of sulfanilamide and picolinic acid after four months of standing. P-61 is page number of experiment and was "printed" by the use of masking tape. After entire swatch was sprayed the tape was removed and dermestids introduced. The selectivity of larval feeding is illustrated since they devoured the untreated P-61, leaving the treated portions undamaged.

Experiments are now underway to determine a practical means of treating existing fabrics in the field (Fig. 6). It would appear that antimetabolites could be considered safe. It is felt that man would have to consume them in great quantities and in a pure state to even begin to experience signs of nutritional deficiency. Therefore, when antimetabolites are diluted to the reduced concentrations required to affect insects, and then impregnated into fabric, there is little likelihood that they will be ingested in harmful amounts by man.

Addition of Surfactants

The inclusion of some of the newer surface-active agents with antimetablolites, particularly the quaternary ammonuim salts which are cationic surfactants, gives indication that these adjuvants will contribute substantially toward a "plating on" of chemicals while at the same time serve as excellent softening agents. It is important to preserve the texture of all fabrics when they are exposed to insect proofing. Topical applications which leave materials harsh to the touch are undesirable.

Some products, such as the new quaternary ammonium salts, carry a positive electrical charge. Since textiles possess a negative charge, the positive-charged molecules are attracted to most fibers, where they are tenaciously retained. The molecules tend to orient themselves toward the fibers, leaving two fatty tails exposed to give surface softness and lubricity, and thus tend to preserve fabric texture. By including a cationic activator with nonpoisonous antimetabolites, a simple aqueous solu-

Fig. 7. Adult and larvae of webbing clothes moth illustrating damage to fabric and concentration of frass.

tion is provided which may be applied to all woolens or woolen combinations without known danger of odor, stain or poisonous after-effects, although one must be aware that repeated applications possibly may be required to maintain protection.

Insect Resistance

Textiles of every description are subject to attack by insects at one time or another. Insecticides and repellents are available to control and repel these pests and many are successful. However, considering the current insecticide resistance problems, one speculates that it may be only a matter of time until fabric pests are included.

Antimetabolites offer a possibility of eliminating difficulties arising from the ability of insects to become resistant to insecticides. Without underestimating the capabilities of insects to absorb the full impact of the most damaging weapons assembled against them, one can assume starvation, through the action of antimetabolites, to be a potential though still essentially untried means of control.

Antimetabolites are products that could be considered insecticidal in their final effect but not in the same manner as insecticides used today. The latter are known to have specific toxic effects when contacted, inhaled or ingested by an insect. Some combine all three modes of action, which greatly enhances their effectiveness. Yet many insects are developing an immunity to the most powerful toxicants in current use. Antimetabolites incorporated in the insect's diet and ingested will function as an impediment to its metabolic processes. It is possible that through their use the resistance factor may be bypassed, and the door opened to an entirely new approach to the control of certain pest problems.

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Polyvinyl Alcohol

(*From Page* 48)

prices have shown a marked downward trend, contrary to the general trend. In the past ten-year period, the Federal Reserve Board's Index of Wholesale Industrial Chemical Prices shows an increase of about 25 per cent. In this same period, polyvinyl alcohol prices have decreased by approximately 25 per cent.

Summary

In summary, polyvinyl alcohol is a polymer offering the specialties manufacturer a wide range of controllable water solubility. It is an excellent film former having outstanding tensile strength, grease and solvent resistance, and gas impermeability. The polymer is a dispersing-stabilizer, adhesive and binder, and is unaffected by greases, oils and solvents.

These properties, found only in polyvinyl alcohol, combine to make it one of industry's most unusual and most versatile polymers.★★

New Sequestrants

(*From Page* 50)

Although the oxidation liquors prepared with 1 to 4 moles of nitric acid per mole of carbohydrate prevent alumina scale formation, they are not so efficient as sodium gluconate for this purpose. Similarly the sequestration of iron with these liquors was only 60-80 percent as effective as that achieved with sodium gluconate. Such oxidation liquors, however, have the advantage of lower cost and on this basis might be the more economical sequestrant to use.★★

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Automotive Aerosols

(*From Page* 70)

aerosol products. And, having access to the services of all of the laboratories of all the propellant, valve and can sources, if any custom filler is stumped on a problem, he can always get help. In addition, an ethical custom filler will offer counsel in an attempt to steer a prospect away from products that are likely to be marketing failures.

The opportunities for ex-

panding sales of chemical specialties through pressure packaging of existing and new products are almost unlimited. I suggest a careful examination of each product with an eye to improved merchandising via pressure packaging.

—★—

New Dryer Installed

A new 40 foot stainless steel spray dryer was recently installed in the Cincinnati plant of Fries & Fries, Inc., for increased production of their line of "Diamond-Sealed" powdered flavors.

Aerosol Flow

(From Page 79)

product would be more viscous after extrusion. Even Product "D," however, could be significantly improved by compounding changes designed to provide a more uniform rate of flow throughout the life of the can.

When the complete rheological characterization is available and considered in the light of finished product requirements, pressure-package formulation and development can be removed from the category of a multiple choice selection between many formulations packed and tested in cans to a sound development study in which each experiment provides direction towards the ultimate commercial product.

Summary

The rheological characterization of pressure package formulations has been shown to be complex because of the conflicting viscosity requirements in various zones in the pressure can.

The rate of shear applied to the product in each of the zones varies from less than 0.1 inverse seconds to over 10,000 inverse seconds. This precludes the use of any one viscometer for a complete rheological analysis.

The Brookfield viscometer is recommended for low shear rate analysis supplemented by use of the Severs extrusion rheometer to reproduce the high shear rate conditions existing in the valve. A series of pressure-package valve types have been calibrated in the Severs instrument and the rheological characterization method demonstrated by use of polymer "solutions" as well as a group of four commercial pressure-packaged toothpastes.★★

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AEROSOLS · LIQUIDS · PASTES · POWDERS

Appointment of William Rowells as director of a newly established package design department of Helene Curtis-Lentheric, Chicago, was announced last month by George N. Factor, vice-president. Mr. Rowells joined Helene Curtis in 1952 and was named art director for the company in 1957. In his new post he is responsible for the creative development of new packaging for all Helene Curtis-Lentheric beauty products.

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Deodorants
Disinfectants
Floor Products
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Laundry Bleach
Metal Cleaners
Moth Products
Polishes
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A market for over 28 billion packages annually

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Packaging NOTES

American Names McCarthy

The appointment of Richard H. McCarthy, Jr., as director of sales for the Bradley-Sun division, American Can Co., New York, was announced last month by C. L. Alexander, vice-president—division operations. Formerly manager of the division's Washington, N. J., plant, Mr. McCarthy now directs the sales of collapsible metal and plastic tubes, plastic bottles, aluminum impact extrusions, and other items. He joined Sun Tube Corp., a predecessor company, as a product manager in sales in 1955 and later became sales manager before transferring to production work.

Richard H. McCarthy, Jr.

★

Can Output Increases

Industry production of metal cans during the first four months of this year increased 3.3 percent compared with the corresponding period in 1958, American Can Co., New York, reported recently. Production for the 1959 period was 11.8 billion cans against 11.4 billion last year.

★

Scovill Office Moves

The eastern district sales office of the cosmetic container division of Scovill Manufacturing Co. has been moved from New York to the company's main office at 99 Mill St., Waterbury 20, Conn. Lamson M. Scovill continues as eastern district sales manager, assisted by Frederick Gaudineer and Gordon Petrie. Scovill's Waterbury telephone number is Plaza 4-1171 and its New York tie-line number is Rector 2-5911.

★

Folding Box Shipments Up

Shipments of folding boxes during May and for the five months ended May 31st of this year were reported to have increased over 1958 figures, according to the Folding Paper Box Association of America, Chicago. During May a total of 188,589 tons of cartons were shipped which had a dollar value of $74,600,000, compared with 186,916 tons worth $73,300,000 last year. For the five months period in 1959 shipments were 952,236 tons with a dollar volume of $375,600,000 against 929,918 tons, or $365,200,000 in 1958.

★

Metal Can Anniversary

In preparation for an international observance next year of the 150th anniversary of the invention of the metal can, the metal can industry in the United States last month selected a symbol designated to foster recognition of the sesquicentennial. Choice of the symbol was made at the quarterly meeting of the Can Manufacturers Institute at the Waldorf-Astoria Hotel, New York.

Individual can companies plan to use the symbol in their consumer and trade advertising as well as making it available to industry suppliers and customers for their own promotional programs.

★

Brockway Names Hawes

John C. Hawes has been appointed manager of marketing, advertising, and promotion for Brockway Glass Co., Brockway, Pa., it was announced recently by A. G. Beltz, general sales manager. In his new post Mr. Hawes is responsible for plans in these fields for Brockway and its subsidiaries, Demuth Glass Works, Inc., Parkersburg, W. Va., and Tygart Valley Glass Co., Washington, Pa. Most recently an account executive with a national advertising agency, he now makes his headquarters at the company's home office.

John C. Hawes

★

St. Regis Names Bunn

William B. Bunn has been appointed director of advertising and sales promotion for St. Regis Paper Co., New York. He succeeds Frederick C. Stakel, who resigned.

Previously Mr. Bunn was a vice-president of Cunningham & Walsh, Inc., New York, the advertising agency which handles the St. Regis account. He had been with Cunningham & Walsh for 34 years. As an account executive he had worked on the paper company's business as well as the accounts of several other companies. Mr. Bunn was originally associated with Newell-Emmett, the predecessor of Cunningham & Walsh, and was manager of its market research department for 10 years.

RISDON VALVE QUALITY IS VITAL INSURANCE

The payoff point for all the time and money invested in your aerosol product is at the fingertips of the user. That is where repeat sales are made or lost.

When your customer pushes the actuator, the performance-insuring quality of a Risdon valve becomes vital. And nothing less than Risdon quality gives full assurance of customer-pleasing results over the entire life of the package. An inferior valve can turn out to be your most expensive "bargain".

Risdon quality... performance-proven on many millions of packages... is the result of extensive scientific research and development. It is zealously guarded at every stage of valve manufacture by Risdon's uncompromising quality control.

Most *leading* aerosol packagers keep their success secure by using only Risdon valves to dispense their products.

Contact Risdon for specific information on the valve for your product.

Write For Free Booklets On RISDON Valves

FOR Pressurized Products Packaged in Glass, Metal or Plastic Containers.

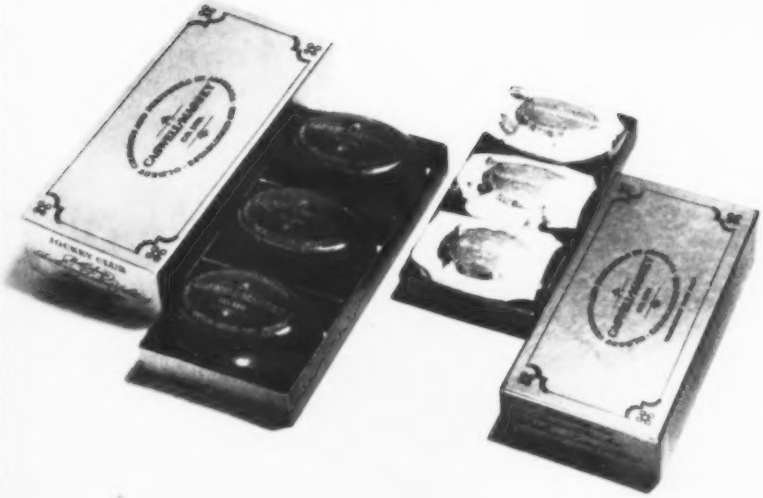
DISPENSING Conventional Aerosols, 3-Phase Products, Alcohol Base Products, Water-Base Products, Foam Products, Powder Sprays, Metered Sprays, Ultra-Low Pressure Applications, Products Containing Propellent Emulsions or Dispersions, etc.

RISDON

THE RISDON MANUFACTURING CO.
Aerosol Division • Naugatuck, Conn.

What's New?

New liquid floor wax designed especially for use in schools was announced recently by Windsor Wax Co., Hoboken, N. J. Available under private label, the wax, which is said by the maker to contain "a high percentage" of carnauba wax, may be used on all types of flooring. The wax is packed in one, five, 30 and 55 gallon steel drums and pails supplied by U. S. Steel Products Division. They are decorated by silk screening at the Windsor plant.



Caswell-Massey Co., New York, perfume and toiletries manufacturer, has just announced the addition to its line of transparent toilet and bath soaps in six scents. The soap, which is imported from Austria, comes perfumed in these scents: "Casmo," "Newport," "Number Six," "Verbene," lavender and "Jockey Club." Boxes of three cakes each of bath and hand soap retail for $4.75 and $3.75, respectively, plus tax. S. H. Buffington, Providence, R. I., supplied the boxes.

Another new light duty, liquid detergent, "Bridget," has been added to the growing number of entries Procter & Gamble Co., Cincinnati, has in the field. The product, packaged in 12, 22 and 32 ounce metal American cans lithographed in four colors, is being test marketed in the Omaha, Nebr., area. Cap and non-drip pour spout, both white plastic, are supplied by American Can. Overall can color is green to match color of the detergent. Product trade name is yellow with red dot over the "i."

New "Hurricane" insecticide of Selig Co., Atlanta, is designed to control roaches and other crawling insects. It contains malathion, dieldrin, piperonyl butoxide and pyrethrins.

Newest addition to "Aeromagic" line of General Aerosols, Inc., Shelton, Conn., is "Rid-O-Dust" for cleaning woodwork, etc. Retails for 98 cents in 8-oz. American can; Precision valve.

Redesigned quart can for "Mystic Foam" rug and upholstery cleaner of Dumas Milner Corp., Jackson, Miss., features pixieish genie character trademark. Can is lithoed in yellow, red white and blue. Product retails for $1.10.

"Ronson Fire-Starter" for wood and charcoal fires is first product to be packaged in pint size F-style Continental can featuring new combination plastic nozzle and captive cap. Garhold, Inc., fitment dispenses liquids in thin stream.

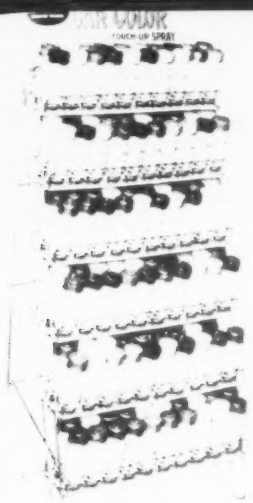
Novel paper bag packaging has been adopted by S. & S. Soap Co., New York, for its new "Launderall" controlled suds detergent for automatic laundry machines. Besides 25 lb. bag shown, product comes packed in 25, 50 and 100 lb. drums.

Silicone base release agent in aerosol spray form for use in heat sealing and packaging has just been added to the line of Sprayway, Inc., Chicago. Spray, designed to prevent plastic and heated metal surfaces from sticking to one another, is packed in 20 oz. can.

Special consumer combination of 8 oz. $1.00 retail bottle of Breck shampoo and 2½ oz. trial size of creme rinse—$1.30 value now being offered to consumers for price of shampoo alone: $1.00 plus tax. Combination packaged in gold foil boot.

Waterproof lubricant A423 for automobile rubber parts is now available in 16-ounce pressure package from Stoner's Ink Co., Quarryville, Pa. Containing silicones, A423 is filled by Stoner in Crown can, with Newman-Green valve. Retails for $1.70.

Adopted for Du Pont weed and brush killer and Calspray pesticide are automatic "Flav-O-Tainer" bags now available from Continental Can Co's flexible packaging division. Sift-proof bags come in sizes from ¼ lb. (3 x 2 x 7 inches) to 25 lb. (9 x 6 x 26 inches). Calspray bag 5 lb., du Pont's 2 lb.



Point-of-sale wire floor rack for complete line of aerosol touch-up paints to match 1957, '58 and '59 models of Ford, Chevrolet and Plymouth cars now offered by Plastic-Kote, Inc., Cleveland. 8 oz. cans of "Car Color" paints retail for $1.69

Three famous Lentheric fragrances: "Tweed," "Adam's Rib" and "Miracle," now available in "Perfumagic" purse size, metered dosage aerosol dispensers, plus "click-in" refills.

A "first" for Real-Kill Co., Kansas City, Mo., is 5 lb. industrial aerosol insecticide in throwaway cylinder. Valve for new size unit is by Aerosol Research Co., Forest Park, Ill.

Redesigned label for "Yarn Glo" cold water detergent in plastic "squeeze" bottle features product name on two lines and larger type. Bottle of this Dumas Milner product is magenta.

New Italian pressure packages for suntan lotion and personal deodorant feature valves by Solfrene, Inc., Milan licensee of Risdon Mfg. Co., Naugatuck, Conn. Solfrene is also loader.

Believed to be first shelf extender ever offered with a disinfectant is steel and chipboard unit designed for "Lysol," a product of Lehn and Fink Products Corp., New York.

New style bottles, labels and caps, all by Owens-Illinois, for "Red Cross Nurse" germicide-deodorizer and Dr. Hubbard's vegetable germicide, made by J. Hubbard & Co., Nashua, N. H.

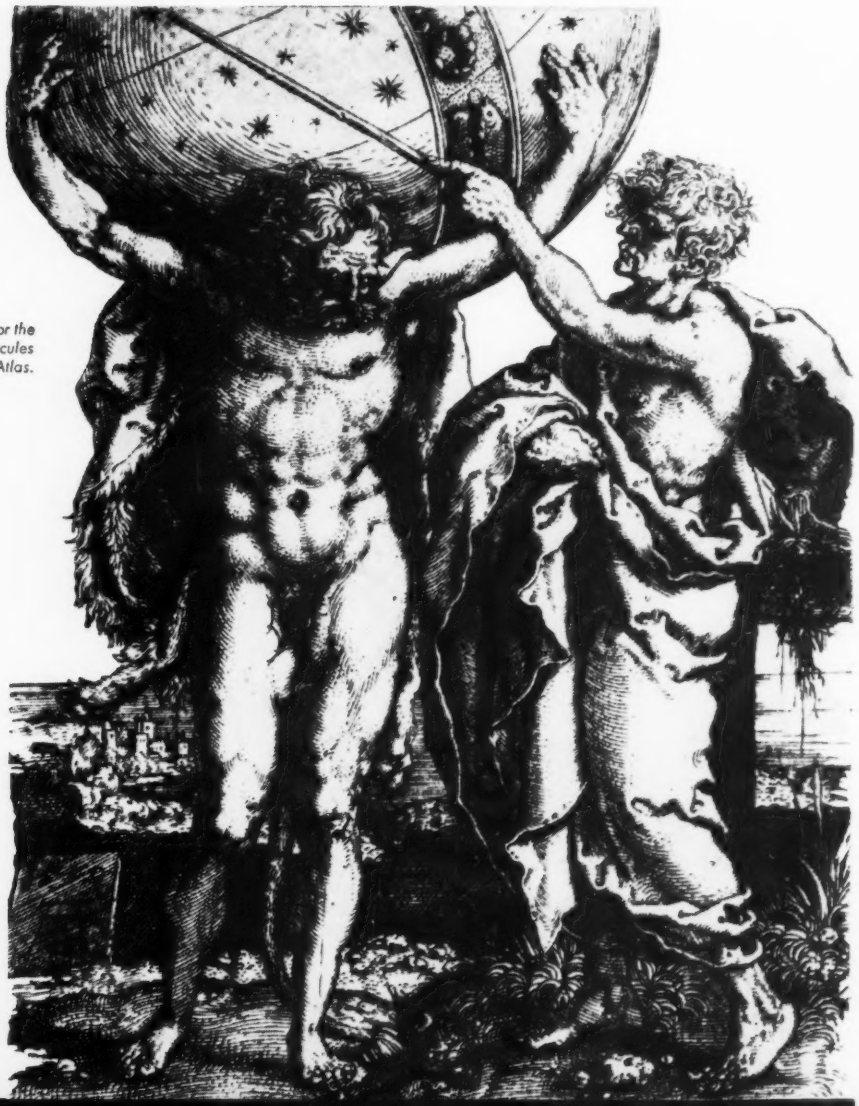
Making its Canadian debut in a 15 oz. clear glass Hazel Atlas jar, after a successful U. S. introduction, is "Motor-Medic" engine additive of Rudiator Specialty Co., Charlotte, N. C. 3-color lithoed metal cap by Hazel Atlas, too.

Pressure packaged shellac and white wall tire cleaner, 2nd & 4th from left, bottom row, are newest additions to line of Redram Chemical Co., Brooklyn. Crown 16-oz. cans and Aerosol Research valves and buttons are used for both products.

"Spray Starch" of Cosmopolitan Commodities Co., Toledo, O., comes in two strengths: light (regular) and heavy (semi-permanent). Packaged in 18-oz cans, product retails for 79¢.

HAVE YOU A HERCULEAN TASK?

It is axiomatic, in our day, that many a harried manufacturer seems to carry "the weight of the world" upon his shoulders. Particularly during a period of work and development on a new or improved product containing an odor problem, able technical assistance is required. The D&O Industrial Odorant Laboratories will provide this aid . . . plus a complete product development service designed to give each item its own individualized fragrance appeal. Take a rest from the "weight of the world". Shift your industrial odorant problem to the able shoulders of the D&O Product Development Labs.



During his eleventh labor, the quest for the Golden Apples of the Hesperides, Hercules sustains the vault of heaven for Atlas.

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Sales Offices in Principal Cities

ESSENTIAL OILS • AROMATIC CHEMICALS • PERFUME BASES • FLAVOR BASES • DRY SOLUBLE SEASONINGS

Crown Elects Two VPs

The election of Lowell H. Smith and William D. Wallace as vice-presidents of Crown Cork &

Lowell H. Smith

Seal Co., Philadelphia, was announced recently by John F. Connelly, president and board chairman. Mr. Smith continues as general manager of the company's machinery division, a post he has held for the past several years. He joined Crown in 1924.

Previously director of manufacturing, Mr. Wallace now heads all of the firm's manufacturing, industrial relations, and engineering activities. He is succeeded in his previous post by John L. Carnie, who has been general manager of Crown's can operations since 1953.

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Knox Acquires Buck Glass

Knox Glass, Inc., Knox, Pa., completed the purchase last month of 100 per cent of the stock of Buck Glass Co., Baltimore, Md. The acquisition was announced jointly by Arthur W. Wishart, Knox president, and Royden A. Blunt, Buck president. Terms of the purchase had been agreed upon previously. Purchase price was not revealed.

The Baltimore firm, currently in its 50th year, sells principally to the beverage, food, and dairy industries in Baltimore, Washington, D. C., Philadelphia, and Norfolk, Va. Employing 230 people, its net sales in 1958 were more than $2.7 million.

Net sales of Knox in fiscal 1958 were over $36 million. Knox manufactures a line of wide-mouth and narrow neck containers in its eight plants east of the Rocky Mountains, and sells to the household chemical, pharmaceutical, food, beverage, and dairy industries from New England to Texas.

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Canco Inventories Ample

Inventories of American Can Co., New York, are sufficient to supply normal can requirements into the fourth quarter of this year, William C. Stolk, president, disclosed late in July when reporting record results for the company for the six months ended June 30th. Net income for the first half of this year rose 18.1 per cent to $21,489,543, or $1.28 per share, compared with $18,192,298, or $1.07 per share in '58. Sales for the period this year were $510,494,304 compared with $469,547,622 in 1958.

Plax Names Anderson

David L. Anderson has been appointed assistant district sales manager in the Chicago district for Plax Corp., West Hartford, Conn., it was announced early this month by E. Marsh, district sales manager. Headquarters for the district is at 911 Busse Highway, Park Ridge, Ill.

A sales representative with Plax since 1955, Mr. Anderson was most recently at the company's Detroit sales branch.

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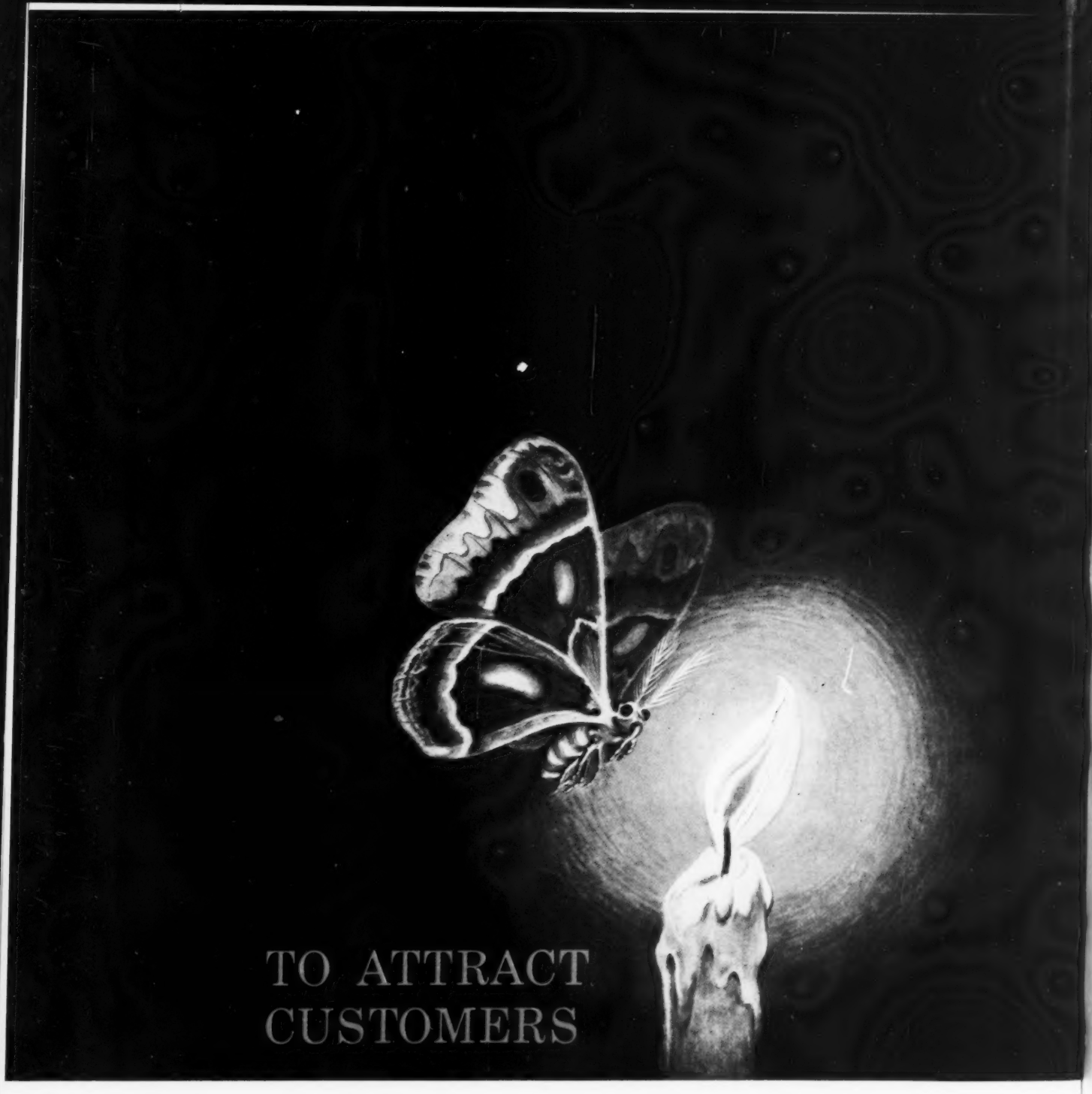
Frederick Rentschler Dies

Frederick G. Rentschler, 84, president of Art Tube Co., Irvington, N. J., manufacturers of collapsible metal tubes, died June 17th in Orange (N. J.) Memorial Hospital after a brief illness. A native of Germany, Mr. Rentschler came to this country in 1914 and was the chief founder of Art Tube in 1927.

Conclusion of a 17-week course in applied business management at San Francisco State College was marked with the awarding of certificates of merit to participants. William F. May, right, vice-president of American Can Co., New York, which co-sponsored the course with the college, receives one of the awards from Jack H. How, left, president of the San Francisco Chamber of Commerce. Looking on are Glenn S. Dumke, the college president, and Sylvia Sigerist, college homecoming queen. Twenty-seven senior students attended the pioneer project which American Can describes as the nation's first college-level course of its type.



. . . let Maryland Glass design a bottle or jar for your exclusive use

When you drop a packaging problem in our lap, the end result is more than a glass container. It is an idea . . . born of restless imagination, shaped by skilled hands, backed by years of sound experience. Our creative staff gives you a selling package that packs well, helps stop the eye and start the sale at the point of purchase. For a successful solution to your design problem, contact MARYLAND GLASS CORP., 2150 Wicomico St., Baltimore 30, Md.

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ATTRACT IN

MARYLAND
GLASS

BLUE • FLINT
AMBER

NEW Trade Marks

THE following trade marks were published in recent issues of the *Official Gazette* of the U. S. Patent Office in compliance with section 12 (a) of the Trade Mark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. See rules 20.1 to 20.5. As provided by section 31 of the Act, a fee of $25 must accompany each notice of opposition.

Presto-Gloss — This for polishing wax. Filed Oct. 13, 1958 by Hubbs and Howe Co., Buffalo, N. Y. Claims use since November 1941.

Beaux Art—This for shampoos and perfumed soaps. Filed April 23, 1958 by Stephan Laboratories, Washington, D. C. Claims use since Aug. 26, 1957.

Guide — This for cleaners and detergents for general cleaning purposes and for removing wax. Filed Nov. 24, 1958 by Janitors Supply and Chemical Co., Greenville, S. C. Claims use since April 8, 1958.

Orthobrite—This for detergent for use in laundry operations. Filed Dec. 22, 1958 by Diamond Alkali Co., Cleveland. Claims use since Nov. 18, 1958.

Jim Dandy — This for liquid detergent for general household cleaning and for laundry. Filed Dec. 22, 1958 by Lever Brothers Co., New York. Claims use since Dec. 15, 1958.

Nun-Better — This for detergent for washing vehicles, and a cleaner for vehicle tires. Filed May 9, 1958 by Rittenbaum Brothers, doing business as Nun-Better Products Co., Atlanta, Ga. Claims use since Nov. 15, 1953.

Spark-A-Lum — This for preparation for cleaning aluminum storm windows and doors. Filed Dec. 22, 1958 by Lawrence E. Connell, doing business as Elcon Aluminum Products Co., Chicago. Claims use since May 1, 1958.

Zepomatic — This for cleaning compounds for use in dishwashing machines. Filed Dec. 31, 1958 by Zep Manufacturing Corp., Atlanta, Ga. Claims use since March 1957.

Zeponite — This for cleaning compounds for use in dishwashing machines. Filed Dec. 31, 1958 by Zep Manufacturing Corp., Atlanta, Ga. Claims use since March 1945.

Zep-O-Suds — This for powdered detergent for use in washing dishes by hand. Filed Dec. 31, 1958 by Zep Manufacturing Corp., Atlanta, Ga. Claims use since March 1952.

Ink-Solv "30" — This for printers powdered hand soap. Filed Feb. 5, 1959 by Schultz Laboratories, Boone, Ia. Claims use since Oct. 8, 1937.

Toilite — This for toilet bowl cleaner. Filed Feb. 13, 1959 by Vincent B. Nyhan, doing business as Vince B. Nyhan Co., Chicago. Claims use since during March 1955.

Motorists Wise Use Simoniz—This for polishing and cleaning preparations for automobiles, furniture, and woodwork. Filed Mar. 28, 1958 by Simoniz Co., Chicago. Claims use since on or about Jan. 1, 1957.

Hi-Pol — This for metal polish in paste form. Filed Jan. 21, 1959 by Standard Research Consultants, Inc., New York. Claims use since Jan. 16, 1959.

TNT — This for pesticides, rodenticides, insecticides. Filed Feb. 4, 1958 by T.N.T. Exterminating Co., Akron, O. Claims use since May 1953 as to pesticides and insecticides.

Minute Man — This for antifreeze. Filed Aug. 11, 1958 by The Dow Chemical Co., Midland, Mich. Claims use since June 30, 1958.

Usaphene — This for germicidals and disinfectants. Filed Sept. 23, 1958 by U. S. Sanitary Specialties Corp., Chicago. Claims use since April 5, 1956.

Premium — This for household laundry bleach having disinfectant properties. Filed Oct. 13, 1958 by Acqua Lina Manufacturing Co., Brooklyn, N. Y. Claims use since June 1958.

LIK—This for lawn insecticide. Filed Dec. 12, 1958 by J. & L. Adikes, Inc., Jamaica, N. Y. Claims use since Nov. 12, 1958.

Tabak De Fontenac — This for toilet soaps. Filed Dec. 2, 1958 by John Lehoud, Catano, Puerto Rico. Claims use since Sept. 20, 1958.

Wash-Maid — This for detergent for washing clothes. Filed Dec. 11, 1958 by J. Thamm Corp., Brooklyn, N. Y. Claims use since May 7, 1957.

Bocabelli — This for castile soap. Filed Jan. 15, 1959 by Bocabelli, Inc., Canal Fulton, O. Claims use since 1849.

Harperglo—This for detergent. Filed Sept. 19, 1958 by Harper Method, Inc., Rochester, N. Y. Claims use since January 1946.

Lan-O-Wool — This for cold water soap useful in washing woolens. Filed Nov. 10, 1958 by Lan-O-Sheen, Inc., St. Paul, Minn. Claims use since Sept. 26, 1958.

Bristol—This for fluid polish and cleaner. Filed Nov. 28, 1958 by Star Chemical Co., Westchester, Ill. Claims use since Sept. 19, 1958.

Die-Tol—This for insect repellent. Filed Nov. 12, 1957 by Philips Fly and Tackle Co., Alexandria, Pa. Claims use since May 1, 1957.

Turf Saver—This for insecticides. Filed June 27, 1958 by Garfield Williamson, Inc., Jersey City, N. J. Claims use since Oct. 2, 1954.

Koldpruf—This for arti-freeze preparation. Filed July 14, 1958 by Cities Service Oil Co., New York. Claims use since on or about June 1, 1936.

Highlander — This for antifreeze. Filed Aug. 11, 1958 by The Dow Chemical Co., Midland, Mich. Claims use since June 30, 1958.

Stag — This for anti-freeze. Filed Aug. 11, 1958 by The Dow Chemical Company, Midland, Mich. Claims use since June 30, 1958.

Coachman — This for antifreeze. Filed Aug. 11, 1958 by The Dow Chemical Co., Midland, Mich. Claims use since June 30, 1958.

Handicaps' Cleaner—This for liquid detergent for a general household cleaner. Filed Dec. 24, 1958 by Ethmer C. Johnson, doing business as E. C. Johnson, Denver, Colo. Claims use since Sept. 10, 1958.

Union Carbide—This for preparation for cleaning automobile bodies. Filed Dec. 31, 1958 by Union Carbide Corp., New York. Claims use since on or about Feb. 27, 1958.

Forum—This for wall tile cleaner. Filed Jan. 14, 1959 by Miraplas Tile Co., Columbus, O. Claims use since Dec. 30, 1958.

Cursolv—This for general purpose detergent. Filed Feb. 16, 1959 by Curtiss-Wright Corp., Princeton, N. J. Claims use since December 1958.

Safesheen—This for high gloss anti-slip wax floor finish. Filed June 17, 1957 by The Gerson Stewart Corp., Cleveland. Claims use since September 1954.

Witclor — This for chemical preparation used as a bleach, sanitizer, and disinfectant - deodorant. Filed Nov. 10, 1958 by Wittichen Chemical Co., Birmingham, Ala. Claims use since on or about Oct. 1, 1954.

Topco—This for bleach for household purposes. Filed Dec. 3, 1958 by Topco Associates, Inc., (Cooperative), Chicago. Claims use since Oct. 15, 1958.

3 Way—This for hair spray. Filed Jan. 22, 1958 by Shulton, Inc., Clifton, N. J. Claims use since Jan. 10, 1958.

Prev—This for body deodorant impregnated in paper tissues. Filed July 25, 1958 by Orchard Paper Co., doing business as Rich Products Co., St. Louis, Mo. Claims use since July 16, 1958.

Viking Maid—This for castor oil type detergent for use on floors, walls, upholstery, rugs, ovens and burners, automobiles, and for laundering. Filed May 15, 1958 by Viking Resin Products, Inc., Waverly, N. Y. Claims use since Jan. 29, 1958.

Chemsearch—This for cleaning composition for building floors and walls. Filed Nov. 14, 1958 by National Disinfectant Co., Dallas, Tex. Claims use since Oct. 9, 1958.

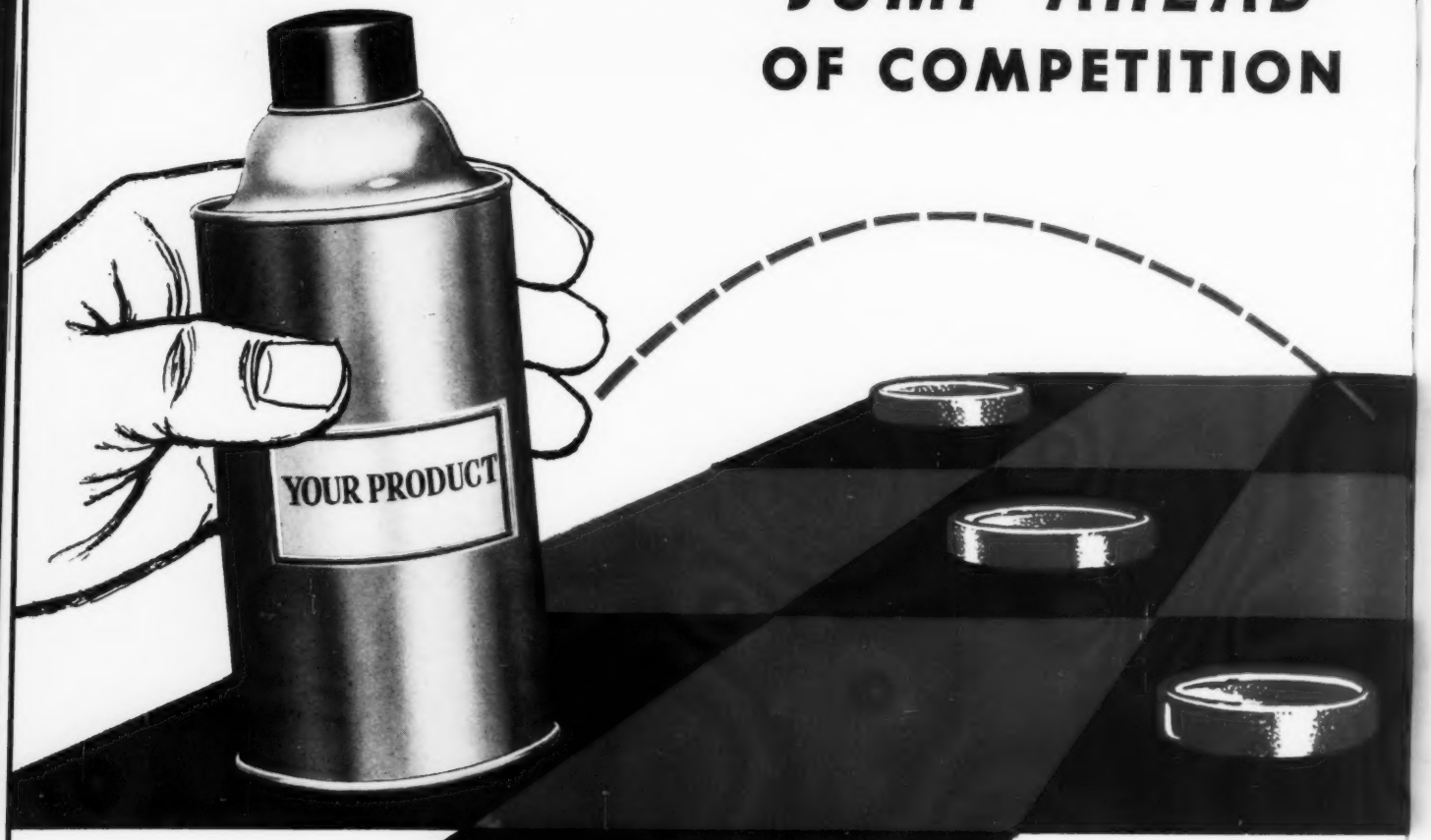
Pacemaker—This for dry cleaning detergents. Filed Dec. 19, 1958 by Caled Products Co., Brentwood, Md. Claims use since May 9, 1956.

Lifetime — This for chrome cleaner. Filed Jan. 16, 1959 by Magnaflo Co., Youngstown, O. Claims use since Jan. 3, 1959.

Colco—This for liquid cleaner for all washable surfaces and for removing surface soil from floors. Filed Feb. 2, 1959 by Columbia Wax Co., Glendale, Calif. Claims use since Mar. 16, 1953.

Zep—This for sweeping, scouring, cleansing, degreasing, and washing compounds, wax removing preparations for floors, and dishwashing detergent preparation. Filed Dec. 31, 1958 by Zep Manufacturing Corp., Atlanta. Claims use since Jan. 1, 1937.

JUMP AHEAD
OF COMPETITION



WITH AEROSOL PACKAGING BY STALFORT

The economy of our high speed lines, (150,000 units per shift) plus tremendous warehouse space to hold the filled containers for drop shipments, has led many of the nation's leading brand names to move to Stalfort.

A completely glass enclosed all stainless line for loading food or pharmaceutical products, even powders, under sanitary conditions; is now in operation.

Your inquiries for private label packaging, in aerosol or conventional containers, for production or test runs are invited.

JOHN C. STALFORT & SONS, INC.

319 W. Pratt Street, Baltimore 1, Maryland • *Manufacturing Chemists Since 1868*

PRESSURE PACKAGING

Thomasson Names Osman

Albert E. Osman recently joined Thomasson of Pa., Inc., Norristown, Pa., as production

Albert E. Osman

manager. Most recently plant manager of the Scranton Corp., Scranton, Pa., Mr. Osman also has been associated with The Wallace Co., Bridgeport, Conn., and earlier with Powr Pak, Inc., Bridgeport. In 1947, Mr. Osman engineered and installed the original aerosol lines at Bridgeport Brass Co. in Bridgeport with whom he was associated from 1936 to 1956.

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McKernan Forms Company

Edward J. McKernan, who recently resigned as sales manager of Seaquist Manufacturing Corp., Cary, Ill., (See *Soap and Chemical Specialties*, May 1959, p. 21) has announced the formation of The E. J. McKernan Co. 314 E. Chicago St., Elgin, Ill. The new firm will operate as manufacturer's representatives for the Seaquist "Sea-Spray" aerosol valve.

Mr. McKernan joined Seaquist in 1953 after five years with Continental Filling Corp., Danville, Ill. Earlier, he had been with the research department of Continental Can Co., Chicago. Telephone number of the new company is Sherwood 1-7545.

—★—

New VCA Bulletin

Specifications for three types of aerosol valves are listed in a new bulletin recently issued by Valve Corp. of America, Inc., 1722 Fairfield Ave., Bridgeport, Conn. The valves are VCA's B-9 for use in standard one-inch opening containers, the B-18 metered valve for glass bottles or one-inch opening containers, and the B-8 valve for glass bottles. Data includes size of openings and types of materials in which the valve components are available. Copies of the bulletin and additional information may be obtained from the company.

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Colton Appoints Ames

James K. Ames has been appointed to the newly created position of manager of field sales for Colton Chemical Co., division of Air Reduction Co., Cleveland, it was announced last month by Bernard R. Krashin, president. Mr. Ames directs the field sales force from headquarters in Cleveland. Most recently central district manager at the company's home office, Mr. Ames was previously Chicago district manager. Before joining Colton Mr. Ames was a

James K. Ames

chemist for Willard Storage Battery Co.

—★—

Shepherd Elected Trustee

H. R. Shepherd, president of Aerosol Techniques, Inc., Bridgeport, Conn., was recently elected to the Board of Trustees of The Columbia University College

Herman R. Shepherd

of Pharmacy, New York. His association with the College of Pharmacy of the City of New York, a division of Columbia, began several years ago when he became interested in the potentials of aerosol pharmaceuticals. Early in 1958 an ATI grant provided an aerosol research laboratory, believed to be the first such aerosol unit in any college, which is being used by the college in its graduate program for research projects involving the development of pressurized pharmaceutical dosage forms. Work at the laboratory is under the direction of Joseph L. Kanig, the designer.

Mr. Shepherd has served as chairman of CSMA's aerosol division for two terms and is editor of "Encyclopedia of Aerosols."

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Carter Earnings Increase

Net earnings of Carter Products, Inc., New York, rose to $2,645,175, or $1.03 per common share, for the quarter ended June 30th compared with $1,643,779, or 64 cents per share for the corresponding 1958 period. Net sales also increased for the quarter from $11,640,159 last year to $15,265,463.

Aerosol Awards . . .

The eighth annual AEROSOL AWARDS will be made
in conjunction with the 46th Annual Meeting of the

CHEMICAL SPECIALTIES MANUFACTURERS ASSOCIATION

MAYFLOWER HOTEL, WASHINGTON, D. C.

DECEMBER 7-9, 1959

. . . will include judging and selecting of best aerosol packages of the year

The aerosol package competition and awards
will be divided into eleven classes as follows:

1. Insecticides, repellents, moth proofers.
2. Room deodorants
3. Lacquers, enamels, other protective coatings; paint remover.
4. Other household products — polishes, glass cleaner, rug shampoo, water repellent, snow, etc.
5. Shave products.
6. Hair preparations.
7. Other personal products — shampoo, body deodorants, dentifrices, sun tan oil, etc.
8. Medicinal and pharmaceutical products.
9. Industrial products — lubricants, belt dressings, stencil inks, etc.
10. Perfumes, colognes, toilet waters.
11. Food products.

. . . a top award for "best in the show" will also be made

Rules of the contest:

1. All entries must be made in the name of the brand owner or marketer. All products entered must have been freely offered for sale on the open market.

2. Entries will close October 15 1959. All entries should be sent as soon after Sept. 15 as possible to the Committee at the CSMA office, and should comprise one completely assembled empty container with attached tag showing (a) name and address of brand owner, (b) class in which entry is made.

3. Only one entry may be made by any marketer or brand owner in any one class, but entries may be made in as many classes as desired.

4. Products entered must be properly labeled in accordance with safety requirements and all laws and regulations pertinent to particular products.

5. Entries are open to any aerosol brand owner or marketer anywhere, and are not restricted to members of CSMA. There are no entry fees or other charges to entrants.

6. Best packages will be selected in eleven classes and a "best package in the show" will be named. Judging will be done by a group of qualified experts. Their decisions will be final.

For information and entry blanks, write to
AEROSOL AWARDS COMMITTEE
Chemical Specialties Manufacturers Association
50 East 41st St., New York 17, N. Y.

MAKE PLANS FOR YOUR ENTRIES NOW!

Aerosols Subject of Telecast for Students

THE story of the growth of aerosols, how they work, and how they benefit consumers was told recently to science students in more than 30 junior high schools in the Greater Philadelphia area through the medium of educational television. Television tutors for the television science lecture were Robert Weiner and Allen Reed, aerosol technical service men with Pennsalt Chemicals Corp., Philadelphia, manufacturer of "Isotron" propellents for pressure packaging.

Messrs. Weiner and Reed, members of the research and development staff at Pennsalt's central research laboratories, used charts, diagrams, aerosol containers, and a motion picture in their half-hour program on WHYY-TV, Philadelphia television station, on June 4. Sponsored by the American Chemical Society, the program was one of a series beamed weekly to young science students in their classrooms.

The Pennsalt technical service men traced the growth of the aerosol from the time the chlorofluorohydrocarbons were first used as refrigerants and propellents following the discovery during the 1940s of the efficiency of loading insecticides into pressurized containers and the effectiveness of an aerosol spray. They cited the G I "bug bomb" of World War II fame as the first consumer application of the aerosol concept.

The Pennsalt presentation over closed circuit to the classrooms covered the differences between types of aerosols. Charts illustrated various phases in the workings of each type. One schematic diagram of the foam aerosol showed what happens before and after shaking; another, valve types; a third, the space spray and surface coating type aerosols.

The advantages of dispensing products from pressurized containers (control of particle size, ease of dispensing foam products, and ease and convenience of application) were discussed. Also demonstrated to the TV audience were some of the commonly-used aerosol products such as perfume, barbecue starter fuel, fire extinguisher, topical anesthetic for dentistry, dermatological compound for skin disorders, and a horn for boats.

A discussion of the propellents usd in aerosols followed, during which the lecturers explained the need for a combination of gas and liquid propellent in the aerosol container. Mr. Reed told his listeners that in the laboratory chemists use their knowledge of the properties of the gases plus information about other pertinent materials to develop new aerosol products and improve existing ones. How the components of an aerosol are put together depends upon the specific product being loaded, the desired form in which it will be dispensed, such as spray, surface spray, or foam, and how to combine the product with the proper propellent.

A film demonstrating the mechanical operation of assembling an aerosol climaxed the program. The film showed a process similar to that which occurs in Pennsalt's laboratories during developmental activities in cooperation with research men of customer companies. The film included testing and sampling of "Isotron" propellents and products in developing new uses for aerosols. This phase of the TV program stressed the practical application of laboratory research and development work to assist consumer product manufacturers who are maketing an increasing number of products in pressurized containers to growing numbers of consumers.

—★—

New Risdon Booklet

"Aerosol Dispensing" is the title of a new 14-page illustrated booklet published by the Aerosol Division, formerly Valve Division, of Risdon Manufacturing Co., Naugatuck, Conn. Publication of the brochure coincides with the change in the division's designation which reflects broadening of Risdon's activities in the pressure packaging field. Formerly engaged only in the manufacture of valves the division now makes complete dispensers.

Risdon's main valve types are described. The "5210" valve for metal containers is supplied with five different actuators, enabling it to dispense a wide range of products including three- phase, ultra-low pressure and foam aerosols. The "GB" valve for glass, plastic, and small metal containers is available with six different types

(*Turn to Page* 128)

Allen Reed, left, and Robert Weiner, right, aerosol technical service men of Pennsalt Chemicals Corp., Philadelphia, demonstrate boat horn operated by pressure package during recent telecast to Philadelphia junior high schools.

The answers to aerosol valve needs are being developed and perfected daily at Precision . . .

THIS MEANS ADDITIONAL PRODUCT SALES FOR YOU!

This new Precision spray valve, in addition to its slanted finger rest has an imprinted arrow in a second color to show the direction of flow.

A Precision stream spout for dispensing any product, regardless of viscousity, that will pour. Currently most toothpaste and syrup manufacturers, are using this practical and attractive unit.

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This graceful spout has proven to be a profitable way of dispensing pharmaceuticals and cosmetics. Combined with Precisions metering valve, it dispenses a pre-determined amount with a touch.

• At Precision there is a continuing program of research and development, for each day brings new products to be packaged in aerosol containers. The success of aerosols, is based on functional design and attractive appearance for these two go hand in hand to improve dispensing and increase sales.

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(*From Page* 125)

of actuators, dispenses conventional and three phase pressurized products including ultra-low pressure products, water-base formulations, emulsions or dispersions. Risdon offers two types of metered spray valves, one of them a large capacity metering valve for dispensing from fractional to multiple cc quantities. The latter is trade named "Magna-Meter" valve.

Any of these types of valves can be topped by Risdon's "Micro-Mist" actuator, the booklet points out. This device produces an atomized spray, widens the scope of the valve. The firm's full line of actuators and protective caps is shown.

Risdon's complete aerosol dispensers are described. These include two refillable models, the "Mini-Mist" purse size unit and the "Vaniti-Mist" one ounce container. The "Handi-Mist" package is non-refillable and comes in purse size.

The firm's laboratory and production facilities for customer service and quality control are described in detail.

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Aerosol Reagents

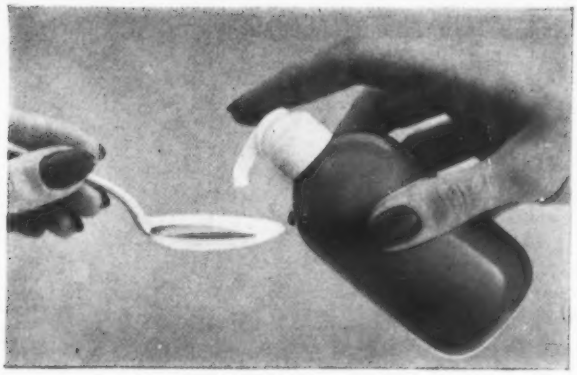
Reagents in aerosol form are a new tool for the analytical chemist using paper chromatography. A line of chromatographic detection reagents in spray containers was introduced recently by Mann Research Laboratories, Inc., 136 Liberty Street, New York 6. Mann's "Spraytec" series includes among others brom cresol green neutral in N-butanol. The reagents come in six ounce "Spratainers" by Crown Cork and Seal Co., are pressurized with a "Freon" 11/12 propellant mixture and dispensed through a Precision valve. Eska Chemical Corp., of Brooklyn, N. Y., is the filler.

★

Aerosol Outing Aug. 11

With 18 hosts and an expected attendance in excess of 100 guests who load and/or market pressure packages, the fifth annual Aerosol Industry Invitational Golf Tournament was scheduled to get under way August 11 at Winged Foot Golf Club, Mamaroneck, N. Y. The annual affair features lunch, golf, cocktails, dinner and prizes.

Hosts for this year's golf tournament include: Aerosol Age, Aerosol Research Co., American Can Co., Clayton Corp., Continental Can Co., Crown Can Co.; du Pont, General Chemical Co., Hercules Powder Co., Oil Equipment Laboratories, Peerless Tube Co., Pennsalt Chemicals Corp., Precision Valve Co., Risdon Manufacturing Co., A. Schrader's Son, division of Scoville Mfg. Co., Union Carbide Chemicals Co., VCA, Inc., and Wheaton Plastics.



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And, what is most important, O-I pressure packages provide the utmost in product protection. For they are made of *glass—inert* . . . tasteless, odorless, and impervious. It is these unique qualities that enable glass to protect an astounding range of products.

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The Magic Touch of Aerosol Packaging expands market for Household Insecticides

Growing like topsy! That's what's happening to the market for household insecticides—and to aerosol household insecticides in particular.

As recently as 1953, total household insecticide sales were approximately $100 million. In 1958, the market grew to $165 million, and is expected to hit $204 million by 1963. The two main types of aerosol insecticides —space and residual sprays—have shown correspondingly dramatic growth. In 1953, space sprays accounted for $41.2 million and residuals for $4.8 million. In 1958, space sprays hit $48.9 million and residuals $26.2 million. And anticipated sales for 1963 are: space sprays, $57 million; residual sprays, $38 million.*

It's never too late to get in on a growing market. So why not plan on capturing your share now? If you have an insecticide product—*or any other product* that can be sprayed, poured, brushed, dusted or daubed—the following useful services from General Chemical can help you get started in aerosol packaging.

Market Information—Helpful facts and figures on the aerosol market are available to present and potential aerosol marketers.

Expert Technical Service—General Chemical has one of the most complete aerosol development laboratories in the country. We will be glad to help you develop the right propellant and formulation compatible with your product, its container and its uses.

Technical Data—The results of our continuing research into new and better aerosols—including information about promising new aerosol formulations developed in our "Genetron" laboratories—are published regularly in special bulletins and reports. Ask to be put on the mailing list for this advanced information.

Contract Fillers—We will also be glad to put you in touch with highly capable contract fillers in all parts of the country who will put up your product in aerosol form for test marketing and handle full commercial production as well.

For further information—or if you would like to arrange for a special presentation—write today to "Genetron" Department, General Chemical Division, Allied Chemical Corporation.

*All figures compiled by Market Surveys Department
General Chemical Division, Allied Chemical Corporation

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New Carbide Techniques

Several improved processing techniques incorporated in its new "Ucon" fluorocarbons plant at Institute, W. Va., were reported last month by Union Carbide Chemicals Co., division of Union Carbide Corp., New York.

Included in these techniques at the 50 million pound per year plant are highly advanced dehydration by molecular sieves, and a system of instrumented production control. According to John R. Hulten, manager of the fluorocarbons division, all grades of fluorocarbons will be available at all times for shipment from the plant's storage facilities, which include twelve 38,000-gallon tanks and several smaller units, because of the improved techniques of the operation.

Fluorocarbons currently being turned out at the new plant are "Ucon 11" (trichloromonofluoromethane), "Ucon 12" (dichlorodifluoromethane), "Ucon 22" (monochlorodifluoromethane), "Ucon 113" (trichlorotrifluoroethane), and "Ucon 114" (dichlorotetrafluoroethane).

New plant in Institute, W. Va., for the production of fluorocarbon propellants and refrigerants marketed under the trade name "Ucon," by Union Carbide Chemicals Co., division of Union Carbide Corp., New York. Plant has 12, 36,000 gallon tanks as well as several smaller units for storing fluorocarbons.

★

Risdon Appoints Five

Risdon Manufacturing Co., Naugatuck, Conn., last month announced new appointments for five of its executives. Lawrence F. Heileman has been named managing director of the cosmetic and aerosol divisions; Donald S. Tuttle, aerosol division sales manager, is now sales manager for the cosmetic division as well; Andrew C. E. Peasco has been appointed industrial sales manager; Raymond W. Wolff is product development manager for the cosmetic and aerosol divisions; and Edward Noyack has been appointed managing director of the Naugatuck and Waterbury, Conn., plants.

Mr. Heileman has been manager of the firm's Danbury, Conn., plants for the past three years. He joined Risdon in 1935 and is a director of the company.

With the firm since 1946, Mr. Tuttle became sales manager of the valve division, predecessor of the aerosol division, when it was formed in 1952.

Mr. Peasco, most recently midwest sales representative, has been with Risdon since 1917. In his new post he coordinates sales of the company's products including metal components, wire goods, and chain, to industrial customers.

Formerly factory manager of the Naugatuck plant, Mr. Noyack, who is a director, joined the company in 1920.

Mr. Wolff has specialized in product development work in the cosmetic field. He went with Risdon in 1918 and holds several design patents.

Lawrence F. Heileman

Donald S. Tuttle

Andrew C. E. Peasco

CONCLUSIVE EVIDENCE OF THE SUPERIORITY OF CAUSTIC CLEANING FORMULATIONS CONTAINING Pfizer GLUCONATES!

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EXHIBIT A

ONE SPARKLING CLEAN BOTTLE —The inclusion of Pfizer Gluconates in your formula will assure bottling customers of a compound which will give spotless results. Pfizer Gluconates have proven to be the product of choice for preventing formation of film on bottles and scale on equipment.

EXHIBIT B

ONE BRIGHT STRIP OF ALUMINUM —Pfizer Gluconates in your aluminum etching compounds prevent the formation of hard, adherent scale. Both Sodium Gluconate and Gluconic Acid increase caustic efficiency—you use less in your compounds yet assure your customers of a more uniform etch.

EXHIBIT C

ONE DE-RUSTED BOLT—Superior caustic rust removal compounds are now possible through the inclusion of Pfizer Gluconic Acid or Sodium Gluconate. In caustic solutions Pfizer Gluconates dissolve rust and prevent after-rust while increasing the efficiency and prolonging the life of the bath.

EXHIBIT D

ONE SHINY PIECE OF STEEL—Pfizer Sodium Gluconate and Gluconic Acid improve the effectiveness of your caustic paint stripping compounds by eliminating the usual brown layer of iron hydroxide. Also they permit freer rinsing of the paint-stripped metal.

THE VERDICT

The verdict is unanimous—Pfizer Gluconic Acid and Sodium Gluconate assure you of compounds with the highest cleaning and etching efficiency. Write Pfizer for complete technical data and information on the proper Gluconate use levels.

CHAS. PFIZER & CO., INC., Chemical Sales Division, 630 Flushing Ave., Brooklyn 6, N. Y. Branch Offices: Clifton, N. J.; Chicago, Ill.; San Francisco, Calif.; Vernon, Calif.; Atlanta, Ga.; Dallas, Tex.

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Continuous soap plant by De Laval uses relationship of soap viscosity to electrolyte concentration for automatic composition control throughout the entire process which takes place under hermetically sealed conditions. Speed, economy and uniformity of the end product are claimed for system. See p. 135.

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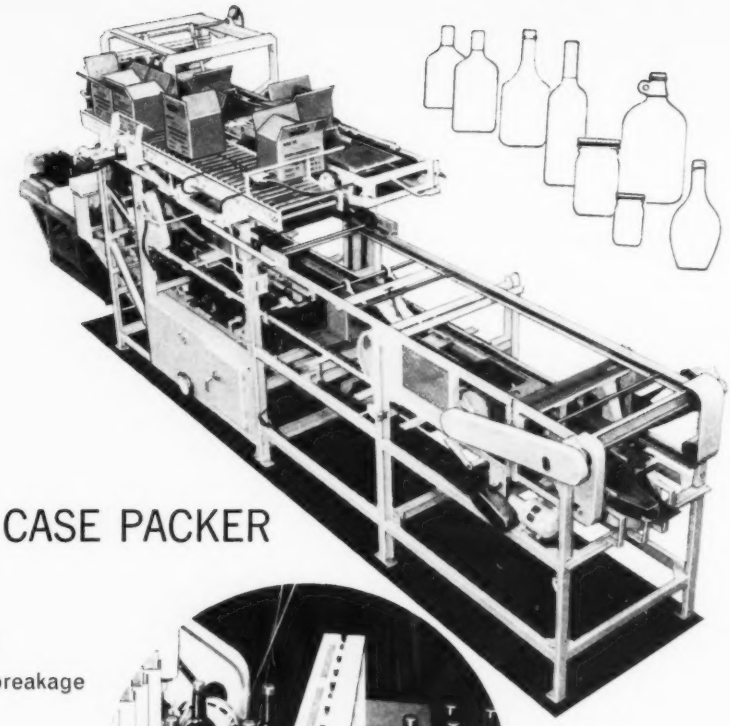

- no operator required
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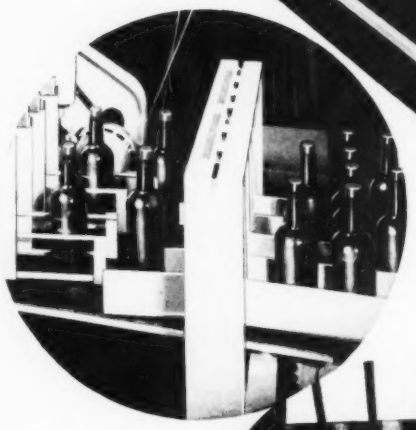
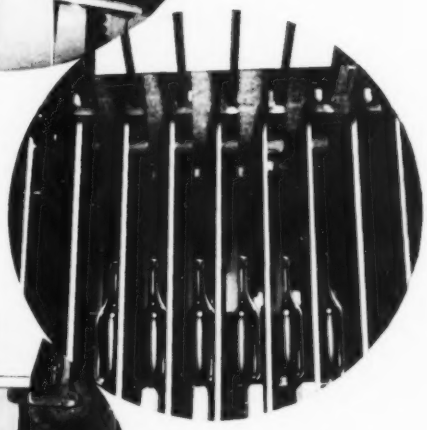
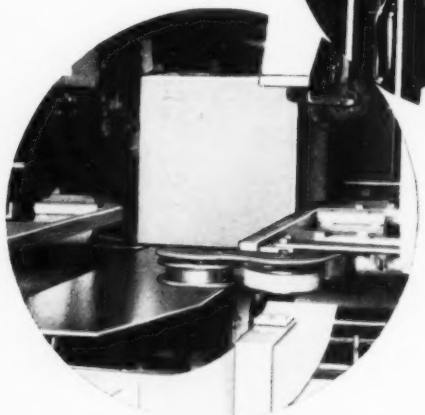


Bottles from one or two lanes enter line divider to form case pattern, 2 to 8 bottles wide



Lifter "fingers" raise bottles up into bottom of case, slightly fanning them for position entry into case cells without label scuffing



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Novel Continuous Soap Process*

Automatic constant composition control, hermetic processing conditions are core of De Laval's "Centripure" soap process

AUTOMATIC and constant composition control and hermetically sealed processing conditions are two outstanding features of the continuous soap making process developed by De Laval Separator Co., Poughkeepsie, N. Y. The "Centripure" process (1) makes soap from neutral fats in three continuous steps: saponification of the neutral fatty oils with lye; washing of the soap mass with brine to recover glycerine; and fitting of the soap.

Saponification

Initial reaction velocity in saponification of neutral fatty oils with lye is very slow due to the immiscibility of the components. In this continuous process the catalytic effect of the soap in the saponification reaction is utilized by feeding the neutral fatty oils into the soap already present. Here the oils are immediately dispersed and dissolved.

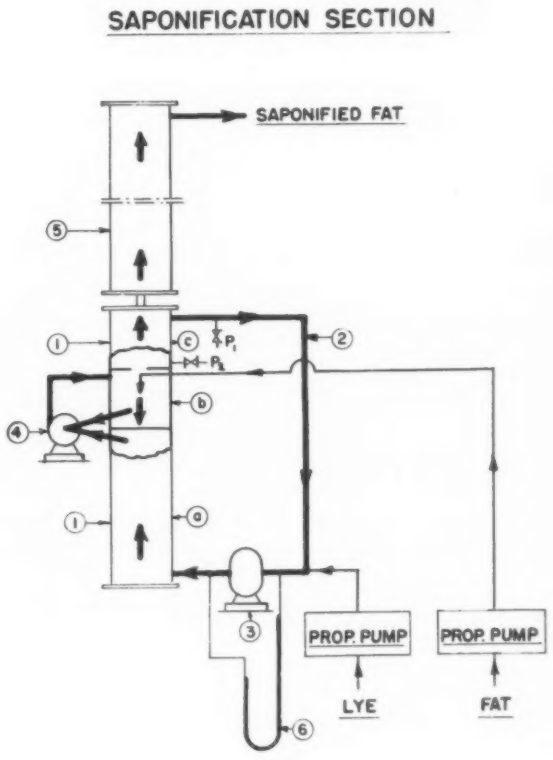
The operation of the saponification column is shown in Figure 1. A circulating pump brings the soap into the saponification column, whereas the neutral fat and the lye required for saponification are conveyed to the column by proportioning pumps. The soap in the lower portion of the column always contains a certain excess of lye and hence the saponification of the neutral oil introduced in the column will start immediately.

The presence of excess lye and the high recirculation velocity in the saponification column minimize formation of soap phases of low electrolyte content such as middle soap and acid soap.

The fat is introduced into the middle section of the saponification column and mixed with the soap already present by means of a centrifugal pump. Although passage through this part of the column takes only two minutes, saponification reaches 99.8 per cent. When leaving at the top of the column the soap is actually 99.95 per cent saponified.

A definite excess of lye is required to insure the complete saponification of the neutral and fatty oils and the formation of the correct soap phases (2). Complete control of the lye-to-oil ratio at all times is therefore essential. Every soapmaker knows that the physical characteristics of the soap, particularly the viscosity, will vary considerably under the influence of excess lye. Detailed investigations of these factors have shown the viscosity variations of the soap to be useful not only in a qualitative

Figure 1



*Condensed and abstracted from a paper presented by Fredrik T. E. Palmquist, Aktiebolaget Separator, Stockholm, Sweden and Frank E. Sullivan, De Laval Separator Co., Poughkeepsie, N. Y., before the American Oil Chemists' Society, Chicago, Oct. 1958.

but also in a quantitative sense.

Figure 2 illustrates the relationship of electrolyte content to viscosity where the viscosity is expressed in terms of differential pressure. At an initial low electrolyte content the soap in question will be extremely viscous. As the electrolyte content increases the viscosity will decrease and after passing a minimum, the viscosity will again rapidly increase. Points a, b, and c illustrate increasing viscosity with increasing electrolyte concentration.

The relationship may further be illustrated by the use of a McBain (3) diagram for a particular soap. Figure 3 illustrates a typical diagram with the important phases enlarged. Area A indicates the neat soap phase, Area F the nigre soap and middle soap (not marked), Area G a mixture of neat soap and nigre soap, Area I represents a three-phase region of neat soap—nigre soap and spent lye, while Area J represents neat soap and spent lye. Also on this diagram are shaded areas indicating regions of equal viscosity.

The point of minimum viscosity as shown in Figure 2 corresponds very closely with the boundary zone between neat soap and nigre (point a). The right-handed branch of the viscosity curve first corresponds to a mixture of neat soap and nigre and, at higher viscosities, to a mixture of neat soap, nigre and spent lye (point b). At still higher viscosities a phase has been established between neat soap and spent lye, for example point c.

An important feature of the McBain diagram with its characteristic phase equilibria is that every point in the shaded area corresponds to a well-defined viscosity, and vice versa. Consequently, the changes in viscosity may be used for the automatic constant-composition control of the lye-fat ratio. In actual production practice the viscosity of the soap in the saponification column is determined by measuring the pressure drop across

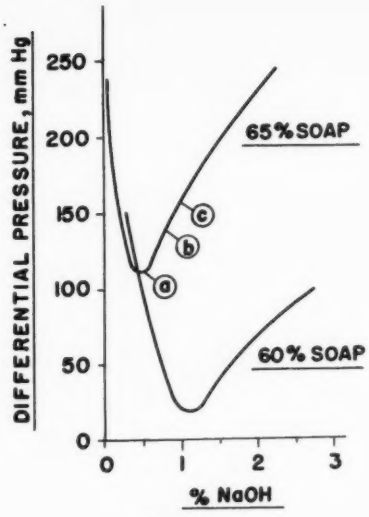


Figure 2

the circulating pump. While the feed pump for neutral fat is set at a constant throughput corresponding to the actual throughput of the entire soap plant, the throughput of the lye pump may be varied. Any change in the viscosity of the soap, which indicates either a deficiency or excess of lye in the saponification stage, would automatically result in a compensating change in the lye flow.

The accuracy that may be obtained in the proportioning of the excess of lye, depends not only on the accuracy of the instruments and the character of the fat charge, but also on the portion of the curve (Figure 2) that corresponds to the operating conditions. Under certain conditions it may be possible to obtain an accuracy of ± 0.01 per cent in the excess of lye. Although it is true that the composition of the fatty material exerts a certain influence on the shape of the viscosity curve, the glycerine content of the initial material is of much greater importance in the manufacture of most standard toilet soaps. A high glycerine content in the initial material, which would occur when using neutral fatty oils, would result in the displacement of the viscosity minimum on the curve (Figure 2) to the left, which would apparently indicate a low electrolyte content. With a low glycerine content in the initial material, as for example when using higher percentages of fatty acid, the viscosity minimum would be displaced towards the right and would indicate an apparent higher electrolyte content.

However, these matters are of negligible importance in the practical application of automatic constant-composition control since with a given starting material it is quite easy under normal conditions to determine the position of the minimum. In practice, when carrying out operations at some point on the left branch of the curve in Figure 2, there will be an immediate drop in viscosity when the fat pump is momentarily stopped. The drop in viscosity will continue until the minimum has been reached and the viscosimeter pointer begins to move up again. The shape of the viscosity curve for the fat mixture in question will, hence, be well-defined and there will be no difficulty in finding a suitable point of control for the regulation of the fat-lye ratio.

The relationship between the viscosity of the soap and the equilibrium of its phases permits the use of viscosity measurements for the continuous control of the saponification process. This puts an end to time-consuming chemical analyses and also to the risk of treating any considerable quantities of soap in an inadequate manner.

The Washing Stage

To recover the glycerine the soap is washed counter-currently by an aqueous electrolyte solution. The solution most generally used is brine (NaCl). The soap is mixed with brine in each washing step, the phases formed, that is fitted neat soap and spent lye, then are separated in a Hermetic centrifuge. It is of great importance that the electrolyte concentration be carefully adjusted. A high electrolyte concentration can result in the formation of a grainy soap phase that occludes spent lye con-

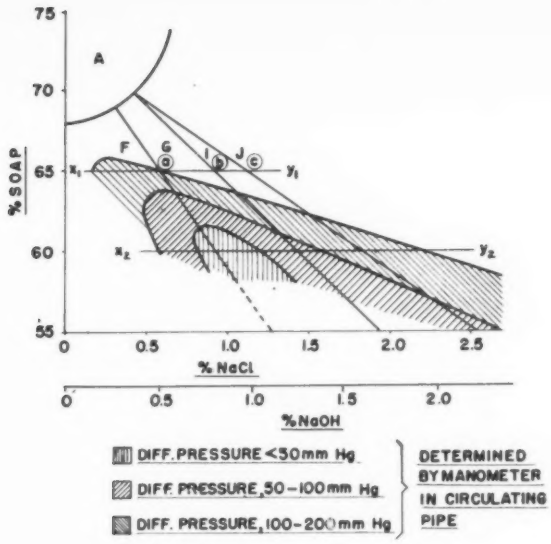


Figure 3

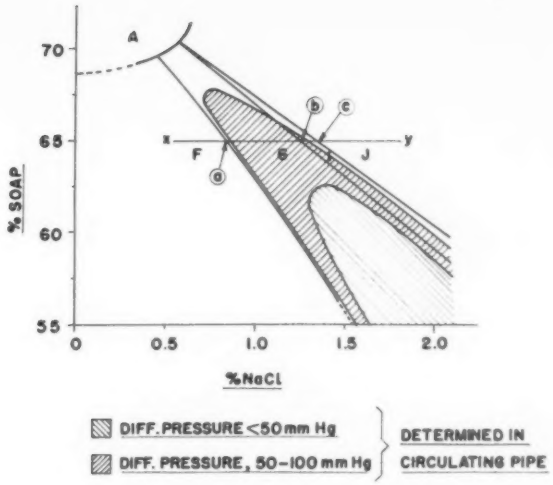


Figure 4

taining glycerine. Therefore the presence of this grainy soap phase will impair the efficiency of the washing stage and must be avoided. At too low an electrolyte concentration, nigre may occur and this will mean an unnecessary loss of soap. Generally, an electrolyte concentration of 12–14 per cent as NaCl is maintained.

The same viscosity indicating system as in the saponification stage is used in the washing stage to check the phase conditions of the fitted neat soap.

The amount of brine necessary for the washing is set by adjusting a variable speed proportioning pump. Pure water and concentrated brine are fed to the suction side of the pump. The spent lye-to-soap ratio (generally some 35-50 kg. spent lye to every 100 kg. fitted neat soap) is preset by adjusting the pump flow rate. The concentration of the brine is adjusted by varying the quantity of water by means of a rotameter to establish the desired phase conditions of the soap. These are checked by the viscosity readings on the instruments. The adjustment of the electrolyte concentration can be completely automated if desired. The concentration of free alkali in the spent lye is dependent to some extent on the operating conditions and on the excess lye in the saponification stage which ranges between 0.1 an 0.3 percent.

Main factors influencing the glycerine yield and the glycerine concentration in the spent lye, as well as the glycerine content of the finished soap are: (1) amount of glycerine in the initial material that may be recovered theoretically; (2) soap-to-spent lye ratio; (3) number of washing steps.

Assuming that the recoverable glycerine content of the initial fatty charge amounts to 10 per cent and that some 40-45 parts of spent lye are used for every 100 parts of washed soap, the glycerine recovery in the soap plant comprising three washing stages and one fitting stage will be 90-95 per cent. The glycerine concentration in the spent lye would be 14-16 per cent and the glycerine content of the fitted soap would be approximately 0.5 per cent.

The Fitting Stage

Although glycerine, water-soluble color pigments, and other impurities are removed by the washing operation, the washed soap still contains various fat-soluble impurities, such as hydroxy fatty acids and low molecular weight fatty acids. Under certain conditions these impurities may impair the quality of the finished soap. The fitting operation serves to remove these impurities and also to improve the milling properties of the soap.

In the continuous soap process correct fitting is facilitated by automatic constant composition control, the principles of which were described in the saponification stage. Its application in the fitting stage is illustrated in Figure 4. As may be seen from this diagram, the soap in the fitting stage has its lowest viscosity in the central portion of fitting Area G. A study of the fitting operation of a soap mixture containing 65 per cent soap will show the following picture: At low electrolyte concentrations the soap is a mixture of nigre and middle soap, possibly also containing some neat soap (Area F). At 0.83 per cent electrolyte content (point a) the fitting zone is entered and the soap now comprises two phases, nigre and neat soap. As the electrolyte content increases there is a drop in viscosity. The minimum viscosity at this soap concentration is at an average electrolyte content of about 1.1 per cent. As the electrolyte content increases, there is an increase in viscosity, and at 1.25 per cent electrolyte (point b) the boundary of the three-phase area is reached. At higher electrolyte content, the soap mass is comprised of three phases which are neat soap, nigre, and spent lye. This would occur

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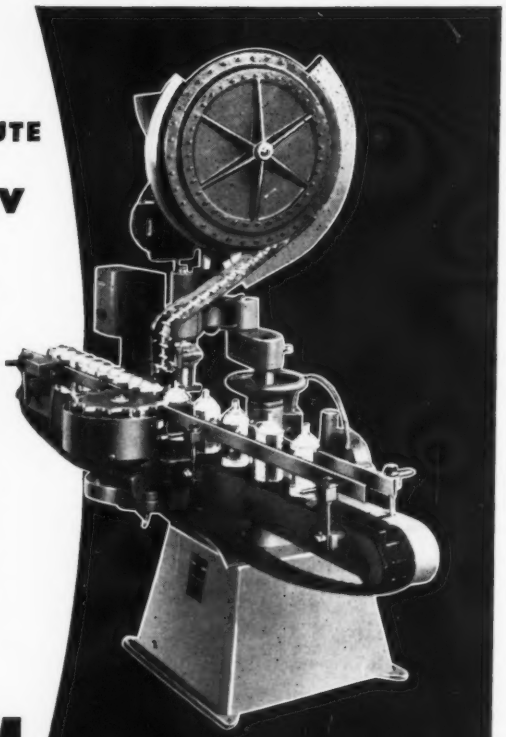

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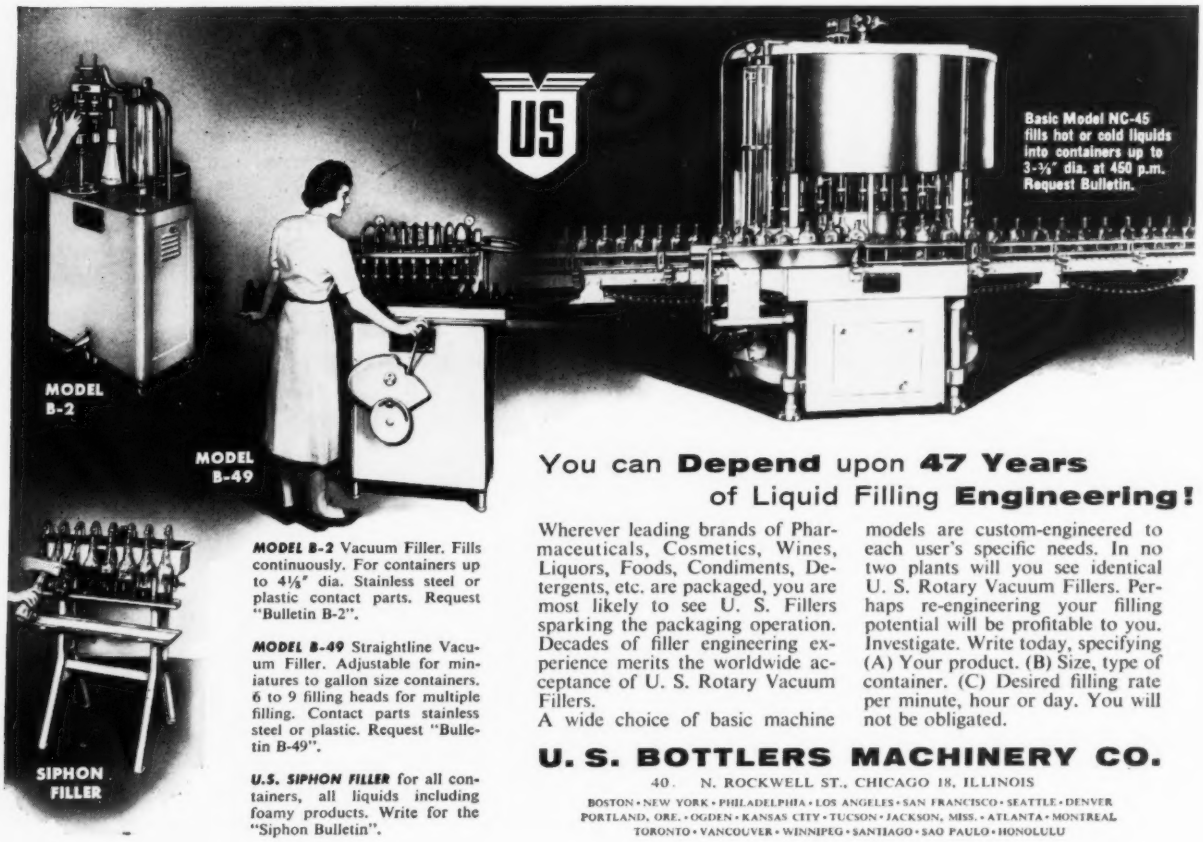
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on the diagram at electrolyte contents between 1.25 per cent and 1.38 per cent, that is between points b and c.

When carrying out the fitting operation two variables must be fixed:

(1) The soap content of the entire soap mass. This is adjusted by means of the proportioning pump for the fitting electrolyte.

(2) The desired composition of the nigre. This factor is set by means of the electrolyte concentration. This is controlled from the changes in viscosity.

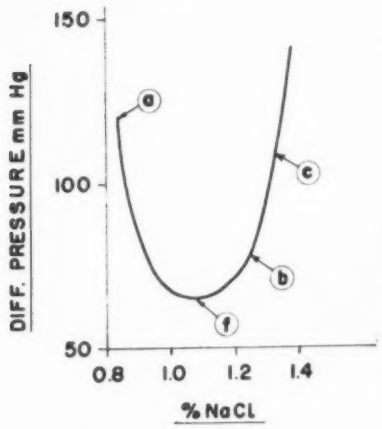
A typical viscosity curve of a fitting operation is shown in Figure 5. When soap is to be fitted from a fatty stock of unknown composition, a high electrolyte concentration in the salting-out area, or three-phase area, is used initially. The electrolyte concentration is then quickly reduced until the minimum point on the viscosity curve has been reached. A suitable point of operation is then adjusted on the right-hand branch of the control curve.

If a nigre of high soap content is desired, the working point is established near the minimum of the control curve (point f). If a "hard" fitting is desired, that is a nigre with low soap and high electrolyte content, the working point is established further up the control curve between points f and b.

Experience has shown that in practice it is best to carry out the fitting operation along the right-hand branch of the viscosity curve. When working on the left branch of the control curve, between points a and f, the nigre obtained has a high soap content and a small electrolyte content. This type of nigre has a very high viscosity and is very difficult to separate from the neat soap. In addition the difference in density between this type nigre and neat soap is very low, making centrifugal separation of neat soap and nigre difficult.

As mentioned, at low overall electrolyte content, the nigre produced contains a comparatively large amount of soap. When operating along the right-hand branch of the viscosity curve, however, the nigre phase will decrease in soap content and increase in electrolyte as the viscosity increases. At high electrolyte contents the

Figure 5



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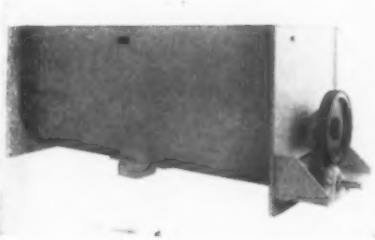

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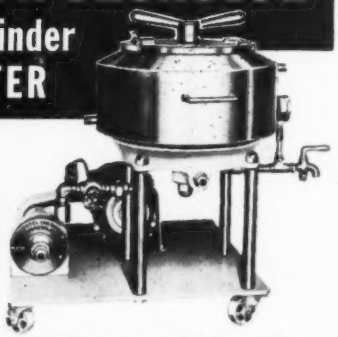

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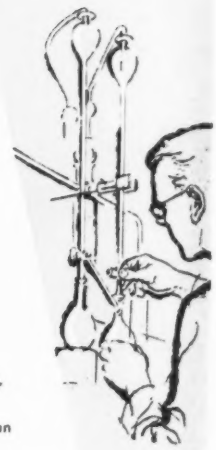

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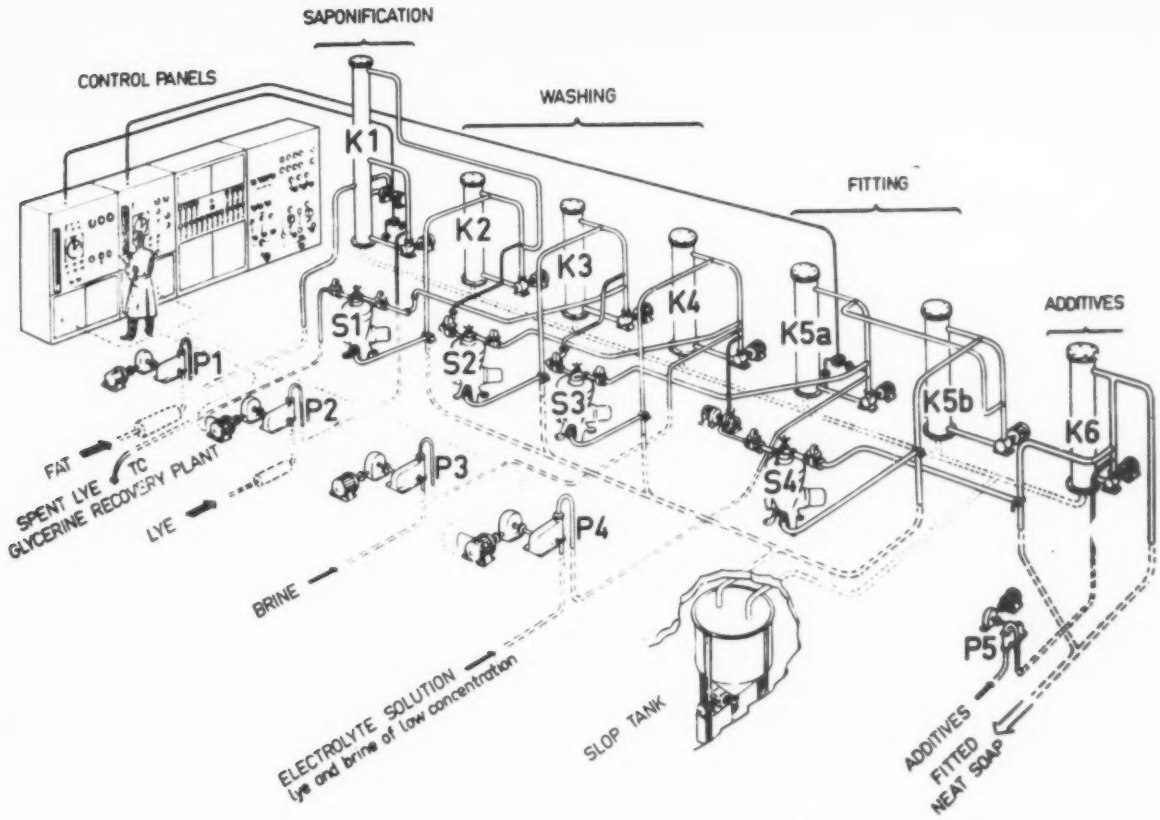

Figure 6

conditions of the fitting operation begin to resemble those of the washing operation and the desired improvement in the qualities of the neat soap can no longer be obtained.

The relationship between the over-all electrolyte content of the soap and its viscosity is almost independent of the composition of the initial fatty charge as far as the fitting stage is concerned. In the saponification stage this was not the case since the glycerine content of the raw materials exerts a strong influence on the viscosity curve. In the fitting step where there is almost no glycerine present, small changes in the soap due to variations in the feed stock have very little effect on the viscosity. At all times the fitting is thoroughly controlled by the automatic constant-composition instruments. The neat soap is produced at the precise degree of fitting desired and the quantity of nigre formed is accurately controlled.

In the manufacture of toilet soap with its severe demands on the over-all electrolyte content of the finished soap, it is extremely important to use a highly efficient centrifugal separator in the fitting step. The over-all electrolyte content of the finished soap is dependent on the composition of the original fatty charge and particularly on its content of low-molecular fatty acids. Tests indicate that the values obtained under practical plant operating conditions will be only 0.03 per cent above the theoretical values. For the majority of toilet soaps this would correspond to an over-all electrolyte content of 0.38 per cent to 0.43 per cent.

It is possible to set the NaOH-to-NaCl ratio, within certain limits, by choosing a suitable fitting electrolyte. The free NaOH content may be kept as low as 0.02 per cent without difficulty.

To avoid increasing concentrations of hydroxy acids and low-molecular fatty acids, a certain part of the nigre is continually bled off from the system. Normally up to 10 per cent of the nigre is sent to the slop tank for rework, while the rest will be returned to the last washing stage.

Plant Operation

This process consists of a hermetically closed, completely automatic system controlled from one instrument panel. The over-all process is illustrated in the flow sheet shown in Figure 6.

The raw fatty material and caustic soda solution enter the saponification reactor by means of pumps p1 and p2 respectively. The completely saponified soap leaving reactor K1 then flows to the washing section. Here the soap is counter currently washed with electrolyte and after each wash is centrifugally separated. The mixing towers of the washing section are shown as columns K2, K3, and K4. The Hermetic centrifugal

(*Turn to Page* 169)

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NEW Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication. Complete copies may be obtained by writing to the publisher of this magazine: — MacNair-Dorland Co., 254 W. 31st Street, New York 1, N. Y., and remitting 50c for each copy desired. For orders received from outside of the United States the cost will be $1.00 per copy.

No. 2,874,127. Sulfonate Detergent Compositions of Improved Foam Characteristics, patented by Henry Y. Lew, San Francisco and Richard D. Stayner, Berkeley, Calif., assignors to California Research Corp., San Francisco. A built detergent composition of superior foam characteristics is revealed consisting essentially, by weight, of about 100 parts of a branched chain C_{10}–C_{15} alkylbenzene sulfonate sodium salt detergent, about 2 to 20 parts of a saturated aliphatic alcohol selected from the group consisting of straight chain C_{10}–C_{16} saturated monohydric alcohols and 1,2-glycols, from about 2 to 20 parts of an N-acyl sulfanilate of the general formula

$$RC(O)N(R')C_6H_4SO_3Na$$

wherein R is a straight chain alkyl group of 9 to 17 carbon atoms and R' is a radical selected from the group consisting of hydrogen and methyl radicals, and about 60% to 90% based on said built detergent composition of inorganic sodium salt builders.

No. 2,874,125. Synthetic Detergent Formulations Containing N-Acyl Taurates, patented by Henry Y. Lew, San Francisco, assignor to California Research Corp., San Francisco. Patent discloses a detergent composition consisting essentially of a water-soluble N-acylaminoalkane sulfonate detergent having 2 to 4 carbon atoms in the alkane portion of the molecule and being derived from C_{16}–C_{18} hydrogenated tallow fatty acids, a water-soluble C_{12}–C_{15} monoalkyl benzene sulfonate detergent, the former being present in an amount of about 25% to 50%, by weight, and the latter 75% to 50%, by weight, of the total of the two, and as a foam-improving agent from about 1% to 5%, by weight, based on the total solids content of said detergent composition, of a C_{12}–C_{18} saturated straight chain alcohol selected from the group consisting of monohydric alcohols and 1,2-glycols.

2. A built detergent composition consisting essentially of 10 to 40%, by weight, of the detergent composition of claim 1 and 90 to 60%, by weight, of water-soluble inorganic salt builders.

No. 2,875,153. Detergent Compositions, patented by Philip Benjamin Dalton, Franklin Square, New York, assignor to Colgate-Palmolive Co., Jersey City, N. J. Claimed is a detergent composition in the form of a gel having a relatively dry form and consisting essentially of water-soluble higher fatty acid soap, water and water-soluble non-ionic normally liquid polyalkylene oxide detergent selected from the group consisting of polyoxyalkylene condensates of higher alkyl phenol and polyoxalkylene esters of higher fatty acids, said soap being derived from a mixture of about 75% coconut oil fatty acid selected from the group consisting of oleic acid and tallow fatty acids, and said non-ionic detergent containing from 5 to 50 moles of alkylene oxide of 2 to 4 carbon atoms each, the amount of said soap and non-ionic detergent being from about 40 to about 60% by weight and in a ratio from about 4:1 to 1:1.2 by weight.

No. 2,875,154. Non-Caking Solid Particulate Detergents, patented by Allen H. Lewis, Berkeley, Calif., assignor to California Research Corp., San Francisco. This patent describes a built detergent composition in the form of small solid particles consisting essentially of about 10 to about 95 parts by weight of a sodium salt of an alkyl aryl sulfonic acid selected from the group of alkyl benzene sulfonic and alkyl toluene sulfonic acids containing from 9 to 18 carbon atoms in the alkyl chain, sodium salt detergent builders in an amount sufficient to bring the aggregate weight of the sulfonic acid salt and the detergent builders to 100 parts by weight and so selected from the group consisting of sodium sulfate, sodium polyphosphates, sodium silicates, sodium chloride, sodium carbonate and sodium carboxymethyl cellulose that the pH of the built detergent composition is less than about 8.3 and from 2 to about 10% by weight, based on the aggregate weight of the sulfonic acid salt and the detergent builders, of boric acid uniformly dispersed in each particle of the detergent composition.

No. 2,875,155. Detergent Briquette and Process for the Production Thereof, patented by Gilbert Dewayne Miles, Ossining, N. Y., asignor to Colgate-Palmolive Co., Jersey City, N. J. A process is disclosed for making an improved detergent briquette which comprises compressing at a pressure between 3 and 100 pounds per square inch, a plurality of particles of a normally solid water soluble detergent composition containing a water soluble anionic synthetic organic detergent and a hydratable inorganic salt to unitary form-retaining briquetted condition and thereafter moistening the surface of such formed briquette with an amount of water which is ½ to 10% of the weight of the detergent composition particles compressed, to increase the surface strength and abrasion resistance of the briquetted composition.

No. 2,877,185. Clear Liquid Detergent Composition, patented by William C. Krumrei, Springdale, Bruce Strain, Wyoming, and Haskel J. Peddicord, Colerain Township, Hamilton County, O., assignors to Procter & Gamble Co., Cincinnati. Revealed is a substantially clear concentraed liquid detergent composition consisting essentially of, in parts by weight: (a) 7½ to 14 parts of anionic synthetic detergents of which not less than 2 parts and not more than 75% is potassium salt of alkyl glyceryl ether sulfonate, said alkyl containing at least 50% of radicals from alcohols of 10 to 14 carbons, the remainder of the anionic synthetic detergent being an organic sulfuric reaction product the alkali metal and alkylol amine salts of which are characterized by a solubility of at least 4 parts in a solution of 8 parts of said potassium alkyl glyceryl ether sulfonate and 20 parts of potassium pyrophosphate in 50 parts of water with 6 parts of sodium toluene sulfonate and 4 parts of ethyl alcohol, said organic sulfuric reaction product being stable in alkaline aqueous solution; (b) a potassium phosphate selected from the group consisting of potassium tripolyphosphate and potassium pyrophosphate and mixtures thereof, from a minimum of 12 parts to the maximum of the limit of solubility at room temperature of said potassium phosphate in the complete detergent; (c) 1 to 6 parts of assistant solubilizers selected from the group consisting of ethyl alcohol, isopropyl alcohol, and diethylene glycol monobutyl ether; (d) 1.0 parts to 3.0 parts of alkylol amide of fatty acids of the coconut group, said alkylols being selected from the group consisting of monoethanol, diethanol, monoisopropanol, and di-isopropanol; (e) 3.5 parts to 6 parts of sodium silicate solids of SiO_2/Na_2O ratio of 1.6:1 to 2.6:1; (f) 2.5 parts to 9 parts of an anionic solubilizer selected from the group consisting of trialkyl phosphates wherein each of the alkyl groups contains not more than 5 carbon atoms, the alkali metal salts of benzene sulfonate, the alkali metal salts of toluene sulfonate and the alkali metal salts of xylene sulfonate; (g) Water to make 100 parts but not less than about 40 parts.

No. 2,884,329. Polish Formulation, patented by James L. Jezl, Swarthmore, Pa., assignor to Sun Oil Co., Philadelphia, Pa. Claimed is a polish composition consisting essentially of a minor portion of a wax derived from petroleum, said wax being selected from the group consisting of paraffin wax, petroleum microcrystalline wax, and mixtures thereof; a major portion of a volatile hydrocarbon solvent in which said wax is substantially soluble; and from 1% to 10% by weight of a volatile, normally-liquid, oxygen-containing, polar organic compound, boiling above the end boiling point of said hydrocarbon solvent, substantially soluble in said hydrocarbon solvent, and in which

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SHELL

said wax is substantially insoluble at ambient temperature, said polar organic compound being selected from the group consisting of glycols and glycol ethers.

No. 2,876,161. Shave Stick, patented by Thomas L. Gieschi, Springfield, Mass., assignor to Ardover Laboratories, a subsidiary of Walbuck Crayon Co., individually owned by Harry Axelrod. The invention covers a shave composition adapted to form a solid stick remaining solid at room temperature comprising an oil in water colloidal gel in which a hydrocarbon mineral oil is the phase and the water phase is a water solution containing a non-toxic lower alkylene glycol having from 3 to 6 carbon atoms in the molecule which is miscible in all proportions with water and which dissolves in hydrocarbon mineral oil, a saturated fatty acid having at least 12 carbon atoms in the hydrocarbon chain which is solid at room temperature and triethanolamine in an amount of from about 1 12 to about 1/5 mol per mol of said solid fatty acid to form a salt with a minor proportion of said solid fatty acid and to contribute acidic solids in the water phase of said gel, said saturated solid fatty acid being present in an amount of from about 50-65% by weight of said gel, said dispersed oil phase being present in in a weight ratio of from 3/8 to 5/8 based upon the weight of said solid fatty acid, said water solution containing from about 14 to about 25% of water based on the weight of said gel, and said alkylene glycol being present in an amount of from about 0.5 to about 0.7 mol per mol of said fatty acid contributing to dimensional solid of said water phase with solid fatty acid and said triethanolamine therein.

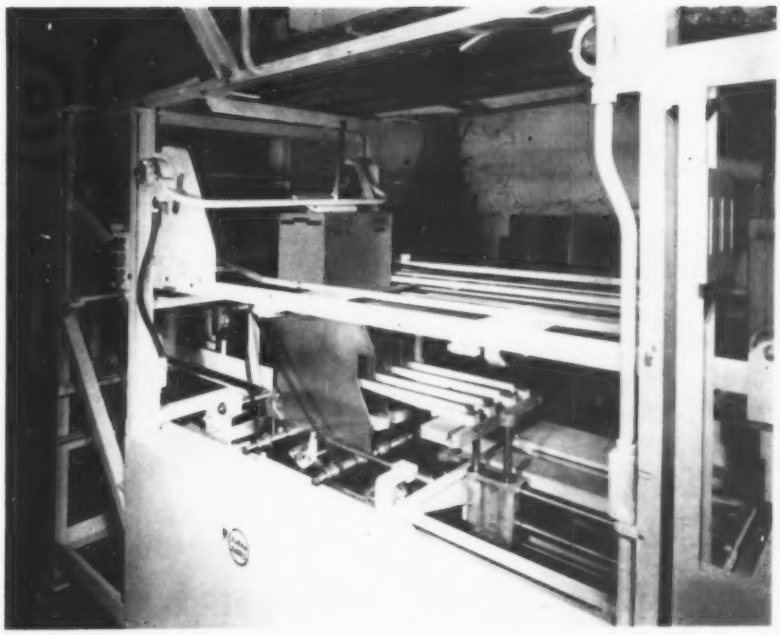
No. 2,862,848. Emulsifiable Insectide Compositions, patented by Vincent J. Keenan, Ardmore, Pa., assignor to Atlantic Refining Co., Philadelphia. A water emulsifiable insectide composition is covered consisting essentially of from 10 percent to 40 percent by weight of a xylene soluble insecticide, from 50 percent to 89.5 percent by weight of an aromatic hydrocarbon solvent selected from the group consisting of benzene, toluene, xylene, higher alkylated aromatic hydrocarbons and methyl naphthalene, and from 0.5 percent to 10 percent by weight of a salt of a mixture of alkyl benzene monosulfonic acids wherein the sum of the carbon atoms in the alkyl groups attached to each benzene ring ranges between 11 and 19, each benzene ring having one alkyl group attached thereto ranging between 11 and 13 carbon atoms in length, said salt being selected from the group consisting of morpholinium, pyridinium, picolinium, trialkanol ammonium, dialkyl alkanol ammonium, and tetra-alkyl ammonium, wherein the alkanol and alkyl groups contain from 2 to 4 carbon atoms.

★

New Emkay Defoamer

Emkay Chemical Co., 319-325 Second St., Elizabeth, N. J., recently introduced a new defoamer called "Emka Defoam" which is described in a four-page brochure available from the company. Emkay recommends the product for low cost foam and froth control. It is claimed to be water dispersible, effective in acid and alkaline mixtures, compatible with most systems, and is available in liquid form.

★



Bottles from the pattern collecting station are elevated into case from bottom by long, tapered "fingers" in new Barnes automatic caser. Curved surface of "finger" causes bottles to fan out preventing their scuffing and facilitating entry of bottle into case dividers. Case is positioned over elevating "fingers" on demand, depending upon speed of infeed-lane conveyors and filling operation.

New Barnes Case Packer

A new bottom loading automatic case packer for bottled goods was introduced last month by the food and container division of W. F. & John Barnes Co., 301 South Water St., Rockford, Ill. The packer receives bottles from one or two lanes, forms and collects a pattern, lifts the bottles into an inverted case travelling overhead, inserts a cardboard pad, closes the inner flap, glues the outer flap, and closes both flaps before discharge.

The machine is completely automatic and is said to pack all shapes of bottles in a variety of sizes. An advantage of bottom loading, according to the company, is that it eliminates the possibility of breakage which occurs in top case loading. Speeds of up to 360 bottles per minute have been demonstrated with the new unit, depending upon bottle size, pattern and type of container, Barnes says.

The food and container division was recently created by Barnes to manufacture and market the case packer as well as a line of conveyors, loaders, unloaders, and packing and processing equipment. C. J. Smith is vice-president of the division; W. M. Parry is sales manager; and R. H. Rummel was recently appointed chief engineer.

★

Diamond Earnings Increase

Sales and earnings of Diamond Alkali Co., Cleveland, O., increased in the first quarter of this year, compared with the corresponding period in 1958. Net sales rose 12 per cent from $26,860,886 last year to $29,991,716 for the first three months of 1959. Net earnings amounted to $2,125,901, or 76 cents per share, compared with $852,820, or 30 cents per share, for the first quarter of 1958.

Products and PROCESSES

Germicidal Detergent

Detergent compositions having germicidal properties may consist of an aqueous solution of a sulfated shale oil with an admixture of 5-chloro-2-hydroxy-diphenylmethane. British patents 806,241 and 806,791, Scottish Oils Ltd., Glasgow, Scotland.

—★—

Silicone Remover

Silicones, present in auto cleaning and polishing formulations, are sometimes carried onto the windshield where they form an unwanted film. Gasoline is a suitable solvent for its removal. Carbon tetrachloride or trichlorethylene is added to reduce flammability. Addition of a little suitable perfume should result in an acceptable product.

A more elegant product of milky or creamy consistency will result from the incorporation of an emulsifier such as soap or detergent into the above solvent mixture in addition to trisodium phosphate as a glass cleaner and some water. Packaged in an attractive bottle or tube such an item should prove popular. *Stiefen-Oele-Fette-Wachse*, July 4, 1959, p. 418.

—★—

Selenium Salt Shampoos

A cream shampoo, said to be non-drying to the scalp, and to have antiseptic properties, specifically against micro-organisms commonly affecting the scalp, contains the following active ingredients: selenium sulfide, 0.25 to 2.5 per cent with bithionol, one to two per cent; CMC, about one per cent; and a detergent such as sodium alkyl benzene sulfonate, 25 per cent. British patent 809,698, Aktiebolaget Kabi, Stockholm, Sweden.

—★—

Glycerol-Based Dentifrice

A two part dentifrice of which the individual compositions may be used independently or in combination is described in a recent Belgian patent (562,960). The two parts are prepared separately to avoid interaction of ingredients prior to use. Good cleaning and brightening action is claimed for the formulation:

Part I (blend to make a paste)	grams
Glycerol	2,000
Magnesium carbonate	800
Tricalcium phosphate	150
Kaolin	50
Gum tragacanth	85
Foaming agent (alkyl sulfate)	60
"Solparol" (Preservative)	2.5
Water	1,850

Part II (blend to make a powder)	grams
Tricalcium phosphate	20
Sodium bicarbonate	110
Magnesium carbonate	20

—★—

New Conoco Petrochemical

Commercial availability of a new surfactant intermediate, dodecylbenzyl chloride, was announced last month by Continental Oil Co., Houston, Tex. "Conoco DBCL" is an intermediate in the manufacture of cationic and nonionic detergents. Reaction with tertiary amines yields cationics, reacting it with polyglycols gives nonionics.

"Conoco DBCL" has a minimum dodecylbenzene chloride content of 90 per cent, is light straw colored and its specific gravity is about 0.965.

—★—

Cottonseed Oil F.A. in Soap

The presence in soap of cottonseed oil fatty acid, even if destilled, involves the risk of patch formation and odor deterioration in storage. Cottonseed fatty acid or the neutral purified oil was formerly used in considerable quantities for the manufacture of white soft soap. Mottled soaps (Eschweger) sometimes contained 10 to 15 per cent of this basic material. A similar percentage is feasible in household soap. However, if incorporation of small amounts of cottonseed oil fatty acids into toilet soaps is contemplated, addition of an antioxidant is a must. Actually, in the absence of very compelling reasons to the contrary, the use of cottonseed fatty acids should be confined to household soaps. *Seifen-Oele-Fette-Wachse*, June 24, 1959, p. 317.

—★—

Improved Solid Bleach

Incorporation of hexachloromelamine in a solid bleaching composition is suggested together with fillers, such as disodium or trisodium phosphate. Hexachloromelamine is said to be very active and a stable very powerful bleaching composition is said to result from such combinations. British patent 810,128, Whiffen & Sons, Ltd., Fulham, London, 1959.

—★—

New "Oxone" Bleaches

Two new bleaches based on "Oxone" monopersulfate compound have recently become available to formulators from the Electrochemicals Department of E. I. du Pont de Nemours & Co., Wilmington 98, Del.

A new all-fabric dry bleach is claimed to be safe on all wash and wear garments, including resin treated cottons and to be harmless to wash-fast colors. No yellowing or other undesirable changes are caused by repeated exposure to this bleach according to du Pont. It is added at the outset of the washing cycle at the rate of one cup of bleach to one machine load.

"Oxone" reacts readily with soil-containing elements and natural color bodies to form colorless compounds which are then rinsed off the fabric. The new product based on this bleaching compound is being sold to independent producers of household dry bleaches and cleaners, who formulate, package and sell their own compounds. The first of the "Oxone" based bleaches is currently being marketed in the Baltimore area by Du-Rite Sales Co., Brentwood, Md., under the trade-name "Du-Rite".

(*Turn to Page* 169)

SOLVAY Snowflake Crystals offer More advantages than any other form of alkali!

This booklet gives you the facts and figures...

Compare these eleven advantages of Snowflake® and Snowfine®, two granulations of SOLVAY® sesquicarbonate of soda, with any other form of alkali—and you'll specify this product for your basic industrial process, household or industrial cleanser, or luxury bath preparation. . .

This distinctive alkali is (1) sparkling, (2) noncaking, (3) free-flowing, (4) dustless, (5) highly soluble, (6) quick dissolving, (7) an excellent water softener, (8) an active detergent, (9) an efficient buffer, (10) a superior acid neutralizer, (11) a good way to add bulk.

Write for samples and free Snowflake fact book, featuring figures and charts comparing properties with the major alkalies.

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Bulk Densities
Sparkling, Dustless, Free Crystals
Snowflake Crystals Dissolves Rapidly
Water Softening Ability

Sodium Nitrite • Calcium Chloride • Chlorine • Caustic Soda • Caustic Potash Chloroform • Potassium Carbonate • Sodium Bicarbonate • Methyl Chloride Soda Ash • Ammonium Chloride • Methylene Chloride • Monochlorobenzene Vinyl Chloride • Para-dichlorobenzene • Ortho-dichlorobenzene • Ammonium Bicarbonate • Carbon Tetrachloride • Snowflake® Crystals • Hydrogen Peroxide Aluminum Chloride • Cleaning Compounds • Mutual® Chromium Chemicals

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☐ Data on how Snowflake can help my operation described in attached letter.

Name _____
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Company _____
Phone _____
Address _____
City _____ Zone ____ State _____

Both of these phosphates are spray-dried. The hollow beads produced by this process stay free flowing for months . . . like those in the pile on the left which are six months old.

Can you tell which pile of phosphate is six months old?

Notice that neither pile has caked. Both flow freely, because both are spray-dried. You can put this to work in both your process and your product.

Spray-dried phosphates from Hooker will stay free-flowing in storage and in your detergent on the grocer's shelf.

And that's just part of the story . . . consider these other advantages:

70% more bulk. You can put out a bigger box of detergent at the same price. The 70% greater bulk of spray-dried phosphates translates into 20 to 30% greater bulk for your detergents. And it doesn't cost you a penny extra.

Better wetting. Spray-dried phosphates absorb your wetting agents faster and more thoroughly because of their greater surface area.

Better blending. The hollow beads of phosphate produced by spray drying stand up as well as other types during mixing. Yet these beads dissolve two to three times faster than regular forms.

Write for data. For more information on Shea brand sodium tripolyphosphate and tetrasodium pyrophosphate which are spray-dried, write or phone to the address below. We'll also be glad to send you information on regular density disodium and trisodium phosphate, sodium hexametaphosphate, and sodium tripolyphosphate.

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PHOSPHORUS DIVISION, DEPT. SC-8
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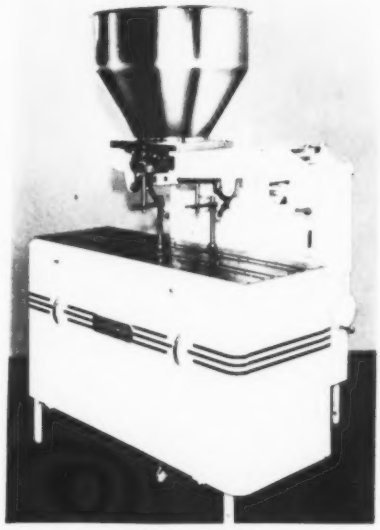
HOOKER CHEMICALS PLASTICS

New Liquid Filler

Filling of semi-viscous and viscous products into cans, bottles, jars, and paper cups is handled by



a new two line machine just announced by Arthur Colton Co., 3400 E. Lafayette, Detroit 7. "Colton-Hope Model 15RF-2" features a filling head assembly adjustable to containers of varying heights (six inch total variation) by means of a handwheel. The unit has a filling range from one quarter of an ounce to one quart. Products rate is from 20 to 60 fills per minute.

Equipped with a rising table for bottom up fill, the machine has a feed bar type conveyor and features a new diagonal filling position of containers, claimed to facilitate handling and to conserve space. A no-containers, no-fill device is incorporated in the unit.

Power is provided by a one half hp motor operating through a variable speed drive. Fill accuracy is said to be plus or minus one half per cent by volume. The stainless steel hopper has an 80 quart capacity. Optional accessories are available.

—★—

Day Bulletin on Mills

A new bulletin giving detailed information about four sizes of its 3-roll dispersion mills was published recently by J. H. Day Co., a division of Cleveland Automatic Machine Co., 4932 Beech St., Cincinnati 12. Full specifications are included for the mills which are reported to make possible the fine dispersion of soaps, ointments, precipitates, paints, printing inks, and various kinds of heavy paste materials. Information is also given about the Day hydraulic roll set which uses hydraulic pressure to actuate pistons to control roll position and pressure.

—★—

Newly Designed Mixer

A new portable industrial mixer was announced recently by Gabb Special Products, Inc., Windsor Locks, Conn. The redesigned model RL "Shear Flow" mixer features a new "RL Hi-Shear" head which consists of two rotating impellers and two stators enclosed within a cylindrical housing. A fine clearance between impellers and stators facilitates complete reduction of agglomerates. The unit can be powered with motors ranging from two to 10 hp, depending upon requirements. Mixing heads are available in various sizes.

Economical and efficient dispersing, blending and homogenizing action is claimed for the device.

Pilot Plant Equipment

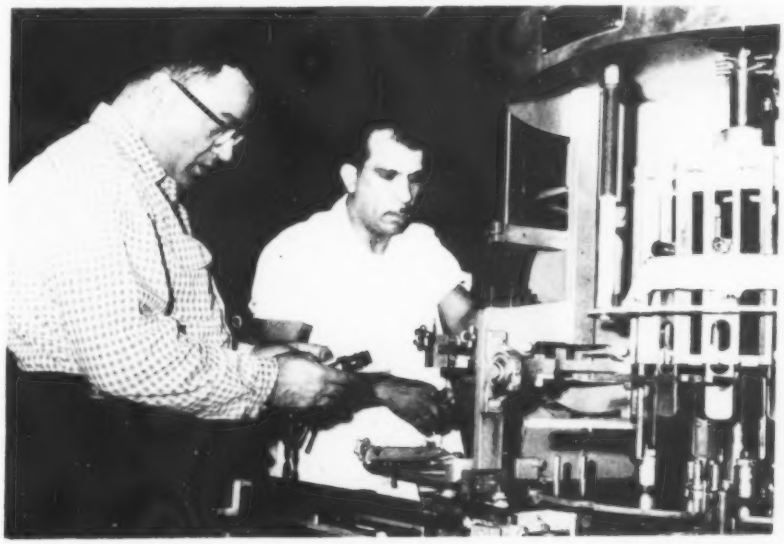
A new eight page illustrated folder has just been published by Chemical and Pharmaceutical Industry Co., 90 West Broadway, New York 7, describing the firm's line of laboratory and pilot plant processing equipment. The "Er-we-ka" system consists of a one half hp, 110 volt, 60 cycle motor and 14 different attachments. These are intended for the processing of dry materials and liquids from light to heavy viscosities. Roller mill, ball mill, mixer and kneader, homogenizer, vibrator, and agitator are among the attachments available.

—★—

PCA in New Offices

The Pulp Chemicals Association moved into new offices early this month at 60 East 42nd St., New York, it was announced by Richard J. Spitz, president. Previously the association was located at 122 East 42nd St. PCA represents manufacturers of chemical products produced by, or from products of the wood pulp industry. It was formed in 1955 succeeding the former Tall Oil Association and now includes a tall oil products division and the sulphate turpentine division.

Biner-Ellison Fil-Labelmatic rotary filling machine operating at Packaging Corp. of America, Los Angeles, is said to fill and label 60 bottles a minute. Ed Brennglass, left, PCA president, inspects a bottle for label placement as it comes off the line. Equipment is reported to feature versatility allowing changeover in a matter of minutes to accommodate any type cosmetic or household item.



HUNDREDS OF

CHEMICAL-SPECIALTY MANUFACTURERS

DEPEND ON COLGATE FOR

TECHNICAL SERVICE AND QUALITY INGREDIENTS

Now—as always—you can count on Colgate as a source of quality soaps and synthetic detergents for use in chemical-specialty manufacture. What's more, our Technical Service Staff has been enlarged and will be happy to help you solve your soap and synthetic detergent application problems.

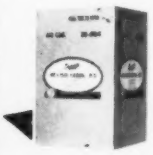
New! **COLGATE MENTOR LIQUID**

An alkyl aryl sulphonate-type liquid detergent providing excellent detergent, wetting, penetrating, foaming and dispersing properties in hot or cold, hard, soft, alkaline or acid waters.

Available in 55-gal. drums.

New! **COLGATE MENTOR BEADS**

An alkyl aryl sulphonate synthetic detergent in spray form. For use in industrial cleaning, processing, compounding. Can be colored and perfumed as desired.



Available in fibre cases.
Low Density 30 lbs. net
Heavy Gravity 60 lbs. net

New! **COLGATE ARCTIC SYNTEX 036**

A 100% liquid non-ionic surface active agent. For use in chemical-specialty manufacture where an economical and efficient wetting, penetrating, emulsifying and cleaning agent is desired.

Available in 50-lb. pails and 460-lb. drums.

OTHER PRODUCTS of interest to chemical-specialty manufacturers include: Water Queen Granulated Soap, Arctic Crystal Soap Flakes, Arctic Crystal Granulated, Arctic Syntex "M," Arctic Syntex "HD," Colgate Concentrated Liquid Soaps.

Remember! We offer a most complete line of soaps and synthetic detergents. Consider the convenience of dealing with *us* for all your needs—including technical service.

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News...

PEOPLE · PRODUCTS · PLANTS

West Stock Listed

* * *

Lever Advances Prentice

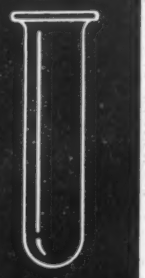
* * *

Washburn Names Contos

* * *

King in Colgate Lab Post

Thomas O. Sokol has been appointed midwest divisional sales manager for the industrial and institutional division, O-Cedar Division of American-Marietta Co., Chicago, announced recently. At one time with S. C. Johnson & Son, Inc., Racine, Wis., Mr. Sokol previously was Chicago representative for O-Cedar's industrial and institutional division.



CUT OUT COSTLY
WATER CORROSION
WITH

PILOT ABS-99

THE *ONLY* SULFONIC
MADE BY ICE-COLD, DILUTE, AIR-FREE
VACUUM SULFONATION

Few, if any, formulators can afford to tolerate water corrosion in their processing. It takes a super concentrate, like Pilot ABS-99, to cut out such costly damage.

With ABS-99 you get extra activity, not water.

That's because Pilot ABS-99 is 98% pure—so pure, in fact, that it may be kept in *plain steel* containers!

ABS-99 offers you the highest sulfonic concentrate commercially available, with 14% more active ingredient than ordinary sulfonics. Such a standard is only made possible by the unique Pilot *ice-cold, dilute, air-free vacuum sulfonation* process.

Make ABS-99 your cornerstone for all sulfonic formulations for dry compounds; oil and water dispersable products; low sulfate liquids and pastes; and amine sulfonates. Informative literature and samples of versatile ABS-99 are yours for the asking, write:

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PILOT

PILOT *California Co.*
215 W. 7th STREET • LOS ANGELES 14, CALIF.

News

Davies Names Widman

The appointment of R. B. Widman as sales promotional representative for The Davies-Young

R. B. Widman

Soap Co., Dayton, O., was announced recently by R. H. Gildner, sales manager. Mr. Widman promotes the sale of the company's line of "Buckeye" products through authorized distributors in southern Illinois, eastern Missouri, and Western Tennessee.

★

Dunnican to Lehn & Fink

Walter H. Dunnican has been appointed manager of the package engineering department in Bloomfield, N. J., of Lehn and Fink Products Corp., New York, it was announced last month by Stanley W. Burnham, director of purchases and of the department. In his new post Mr. Dunnican is responsible for all phases of package development and engineering of all the company divisions. With Lehn and Fink since 1947, Mr. Dunnican most recently served as packaging engineer for the Dorothy Gray division.

★

Washburn Names Contos

Nick G. Contos has been appointed sales manager of the floor maintenance products division of T. F. Washburn Co., Chicago, it was announced last month by Linus O. Smith, president. Starting with the company in 1957 as a chemist, Mr. Contos later became chief chemist and then technical director. In 1956 he was appointed assistant sales manager.

★

West Listed on Exchange

Common stock of West Chemical Products, Inc., Long Island City, N. Y., is now listed on the American Stock Exchange under the symbol WCP. The listing became official at ceremonies held last month attended by officers of the Exchange and West.

Present shares outstanding, less those held in the treasury, total 385,279 and consolidated company sales for fiscal 1958 were reported at nearly $21 million. The company manufactures and distributes industrial and institutional maintenance and sanitation products including germicides, floor cleaners and waxes, insecticides, hand soaps, and paper towels. Established 27 years ago, the firm is engaged in an expanded research program which has resulted in the development of many new products. It maintains 62 sales offices in the United States and Canada and employs about 1,400 people.

★

Wood Joins Shulton

The appointment of William Wood as a sales supervisor for consumer products of the fine chemicals division of Shulton, Inc., Clifton, N. J., was announced last month by William H. O'Brien, vice-president. Mr. Wood is responsible for sales of consumer chemicals in the east coast area between New York and Richmond, Va. He replaces Roland Vigue who was named sales controller of the division's consumer department.

Previously Mr. Wood was with Monsanto Chemical Co., St. Louis, and also has been associated with Wilson Products and Nuvite Products Co.

Lever Advances Prentice

Robert M. Prentice has been advanced to the newly created position of marketing services

Robert M. Prentice

director for Lever Brothers Co., New York, it was announced last month by Samuel Thurm, advertising vice-president. Mr. Prentice is now responsible for all promotional activities of the company and continues to supervise the marketing information unit which he formerly headed.

Joining Lever in 1956 as product manager for "Spry," Mr. Prentice was later appointed manager of advertising policy development. He became manager of marketing information last year. Previously he was an account executive with Compton Advertising Agency.

★

OM Renews Sponsorship

Olin Mathieson Chemical Corp., New York, has renewed its sponsorship of the television program "Small World" for the 1959-60 season. The program, produced by Edward R. Murrow and Fred R. Friendly, will be seen on about 135 stations over the Columbia Broadcasting System network for 33 consecutive Sundays beginning Oct. 4th from 6 to 6:30 p.m., EST. During its first season last year the show won three major awards in the television industry.

Sherman of Colgate Resigns

The resignation of Stuart Sherman as corporate vice-president—marketing of Colgate-Palmolive Co., New York, was announced last month by Edward H. Little, board chairman and president. Mr. Sherman resigned, the company said, "in order to obtain the full rest necessitated by a serious eye illness." He continues as a director.

Stuart Sherman

John L. Bricker

John L. Bricker, who was recently elected vice-president—marketing planning (see *Soap and Chemical Specialties*, July 1959, p. 164), has been appointed to succeed him as corporate v.p.

Mr. Sherman joined Colgate as a salesman in 1931 and seven years later formed Sherman & Marquette, an advertising firm that was credited with creating many successful advertising campaigns for Colgate. He rejoined the company as vice-president for marketing in 1956.

Mr. Bricker recently rejoined the company after being executive vice-president of Outdoor Advertising, Inc., New York. He originally went with Colgate in 1949 in the toilet articles sales department.

Nopco Appoints Ward

John E. Ward has been named resident manager of Nopco Chimie S. A., Fribourg, Switzerland, a wholly owned subsidiary of Nopco Chemical Co., Newark, N. J., it was announced last month by E. A. Robinson, vice-president—laboratory research and development and foreign sales for the industrial division. At the same time, Dr. Robinson announced the appointment of A. Howard Stuewe as technical manager of Nopco's foreign department – industrial, succeeding Dr. Ward.

Dr. Ward joined Nopco in 1951 and in his new post works closely with all company divisions in supplying technical assistance to Nopco customers in the European, Mediterranean, and African areas.

Most recently with Stauffer Chemical Co., New York, Mr. Stuewe had been associated with Nopco from 1949 to 1956 as a chemist.

—★—

Bortell Joins Shulton

The appointment of Clinton Bortell as a sales supervisor for consumer products of the fine chemicals division of Shulton, Inc., Clifton, N.J., was announced last month by William H. O'Brien, vice-president. Mr. Bortell is responsible for sales of consumer chemicals in the southwest. He makes his headquarters at the Shulton offices in Dallas.

Most recently a salesman with International Latex Corp., New York, he also has been associated with B. T. Babbitt, Inc., New York, in a similar capacity.

—★—

New "Rinso Blue" Premium

A 12 volume encyclopedia for children is being offered by Lever Brothers Co., New York, as a premium for its "Rinso Blue" detergent. Each volume of the encyclopedia may be obtained by consumers for 50 cents plus a box top from any "Rinso Blue" package. Repeat purchases of the product are expected by the company because of the nature of the 12 unit

Objects to Babbitt Ad Plan

A recently announced advertising plan sponsored jointly by B. T. Babbitt Co. and Reuben H. Donnelly Corp., direct mail advertising firm, both of New York, whereby consumers could exchange coupons printed on the labels of Babbitt products for United States savings stamps has brought objections from a U. S. Congressman. Rep. Abraham J. Multer of New York stated last month that he is introducing a bill that will prohibit the use of U. S. savings stamps for trade promotion as a general proposition. Although the Treasury Department has not given specific endorsement to the plan, it has given public recognition to it in a statement saying that the Department expects expansion of the savings stamp market. The Treasury also states officially that the use of savings bonds or stamps as premiums "does not imply (its) official endorsement or sponsorship."

—★—

Monsanto Names McCarthy

Edward C. McCarthy has been appointed manager of the silicon project in the development department of the inorganic chemicals division, Monsanto Chemical Co., St. Louis, it was announced last month by J. L. Christian, a Monsanto vice-president and general manager of the division.

Previously Mr. McCarthy was plant manager of Mound Laboratory, Miamisburg, O., which is operated by Monsanto's research and engineering division. He joined Monsanto in 1944.

promotion. Another appeal of the promotion, according to the company, is that families with children use about 2.3 times more detergent than childless families.

Specially prepared for children aged 6 to 16, the Picture World Encyclopedia has a total of 2,304 pages and is illustrated by more than 6,000 pictures in full color. Through the premium offer the entire set may be obtained for $6.

Begun last month and continuing through next year, the nation-wide promotion is being supported by point-of-sale material, print advertising, and television commercials.

★

Helene Curtis Sales Rise

Sales and earnings of Helene Curtis Industries, Inc., Chicago, increased in the three months period ended May 31, 1959, compared with the corresponding period last year. Earnings rose to $450,985 from $409,380 last year and sales amounted to $11,010,078, against $10,084,241 in the comparable 1958 period.

★

Stepan Builds Center

The start of construction on a $1 million administration and research center to be completed next January for Stepan Chemical Co., Chicago, was announced last month by Alfred C. Stepan, Jr., president.

Located on a fifteen acre site in Northfield, Ill., a suburb of Chicago, the new building will house the company's executive offices and laboratories. It will also make possible the consolidation of the firm's research and development staffs, now located at various manufacturing plants.

Artist's model of Stepan Center under construction in Northfield, Ill.

GAF Appoints Lewis

Stanley Lewis has been named director of marketing for General Aniline & Film Corp., New York, it was announced last month by Philip M. Dinkins, president. Formerly a marketing executive with Lever Brothers Co., New York, Mr. Lewis is now responsible for General Aniline's marketing operations which include sales, advertising, sales promotion, distribution and organization. Before joining Lever in 1956, Mr. Lewis was vice-president and general sales manager of The Bon Ami Co., New York, which he joined in 1950. He graduated from Harvard in 1935 and also attended the Harvard School of Business.

Stanley Lewis

★

"Univac" for Economics

Economics Laboratory, Inc., St. Paul, Minn., has signed a contract with Remington Rand division of Sperry Rand Corp., New York, for delivery this summer of a "Univac Solid-State Computer," said to be the first system of its kind in commercial operation. The new computer will be housed in the computing center at the company's headquarters and will replace the present punched card tabulating equipment. It will be used for invoicing, inventory control, auxiliary accounting reports, and statistical applications, E. J. Osborn, Economics Laboratory president announced.

★

P. & G. Management Leader

Procter & Gamble Co. is one of 10 companies listed as leaders in excellent management during 1958. The listing in the fifth edition of the "Manual of Excellent Managements" published by the American Institute of Management, Inc., 125 East 38th Street, New York 16.

P & G has been included in the category of the 10 "outstanding companies" for a number of years These are picked from a total of 501 "excellently managed" companies, which in turn are selected from 5000 managements evaluated by the institute. Colgate-Palmolive Co. has been rated among excellently managed companies since 1951.

★

Sponsor Radio Shows

Beam Products, Inc., and Monarch Chemicals, Inc., both of Minneapolis, were signed last month as program sponsors for radio station WCCO in that city. Beam is sponsoring a 15 minute news broadcast once a week for the promotion of its "Beam Wipe-Away Oven and Grill Cleaner." Early this month Monarch began sponsoring a weekly 15 minute farm program for its "Sep-ko Cleaning Miracle," a dairy equipment cleaner that is reported to be gaining wide household use.

★

G. H. Wood Profit Rises

Net profit of G. H. Wood & Co., Toronto, Canada, for 1958 was reported recently at $196,058, an increase of 11.5 per cent above the 1957 profit of $175,821. Earnings per common share before payment rose from $6.19 in 1957 to $6.99 last year.

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King Manages Colgate Lab

William J. King has been appointed manager of the laboratory for dental medicine research

William J. King

of Colgate-Palmolive Co., New York, it was announced last month by Joseph H. Brant, director of corporate research. The laboratory, located at Rutgers University, New Brunswick, N. J., is a unit of Colgate's corporate research and development department which operates in cooperation with the University. Previously Dr. King was head of the toilet articles division oral products research section. In his new post he succeeds John W. Hein, who has become dean of the dental schoool at Tufts University, Boston.

Meanwhile John M. Longfellow replaces Dr. King in the oral products section. Previously chief of the skin products section, Dr. Longfellow is succeeded by Hyman Henkin. Dr. Henkin has been replaced in his duties as hair products section head by Richard K. Lehne, who joined Colgate when it recently acquired Wildroot Co., Buffalo.

—★—

New Economic Poison Laws

An act relating "to labeling of containers of dangerous drugs, poisons, and other hazardous substances" has been enacted in California recently and will become effective January 1, 1960. One of the label requirements is that the words "safe", "safety", or their equivalents must not appear upon the labels of containers of the substances covered under the act. Misbranding is defined and the poison label required is specified. The counsel and officers of the Chemical Specialties Manufacturers Association worked closely with Californian trade associations and authorities in modifying the original draft of the law, now enacted as Assembly Bill No. 1908.

Registration of economic poisons becomes mandatory in the State of Missouri under House Bill No. 221, effective October 1, 1959. The annual fee is set at $7.50 per brand for the first 10 brands, and $5.00 for each additional brand. Identical products bearing identical labels but different trade names may be registered as a single product. If the registration fee exceeds three per cent of the sales of the registered article the fee will be returned upon proof.

—★—

Emery Branch Office Moves

Emery Industries, Inc., Cincinnati, has moved its branch sales office from Lowell, Mass., to 751 Main St., Waltham 54, Mass. The new telephone number is Twinbrook 3-6358. Making their headquarters in the new office for their New England territories are John A. Condon and Walter R. Paris of the organic chemical sales department and Tom W. Macy of the fatty acid sales department. A warehouse operation is being maintained in Boston to service these departments as well as the company's Sanitone division.

—★—

Allied Transfers Mellion

The transfer of Joseph M. Mellion as divisional sales representative from Reading, Pa., to the Baltimore, Md., area was announced recently by Harold L. Rieg, director of branch operations for the National Aniline division, Allied Chemical Corp., New York. Mr. Mellion now covers Maryland, District of Columbia, and northern Virginia and reports to the Philadelphia sales office. He joined National Aniline in 1957.

Amoco Names Parkinson

Laurel G. Parkinson has been appointed general manager—marketing for Amoco Chemicals

Laurel G. Parkinson

Corp., Chicago, it was announced last month by J. H. Forrester, president. Mr. Parkinson had been general sales manager—chemicals for the company since last year. Previously he was manager of the industrial chemicals department of Lever Brothers Co., New York, and prior to that he was with Atlas Powder Co., Wilmington, Del.

—★—

Lestoil Names Davis

Martin Davis was appointed last month as sales manager of the Lestoil m-c detergent concentrate division of Lestoil, Inc., a subsidiary of Adell Chemical Co., Holyoke, Mass. He replaces H. L. Goldstein who has left the firm to form his own business. Mr. Davis also is in charge of the company's d-i Lestoil (paper mill) division and works out of the firm's home office in Holyoke.

Lestoil m-c detergent concentrate is sold through sanitary supply distributors in five, 15, 30, and 55 gallon drums.

—★—

New Glycols Plant

Completion of new facilities for the manufacture of propylene glycol, dipropylene glycol, and propylene oxide were announced last month by Dow Chemical Co., Midland, Mich. The facilities are located at Dow's Plaquemine, La., plant.

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Lien Wins Bobrick Contest

Carl Lien, president of Lien Chemical Co., Franklin Park, Ill., was named winner last month of

Carl Lien

the dispenser endurance contest sponsored by Bobrick Dispensers, Inc., Brooklyn, N. Y. The contest was begun Feb. 23, 1958 when a Bobrick Model 24 liquid soap dispenser was put on a continuous operation test stand and guesses were taken as to the number of times the dispenser would operate without malfunction. Mr. Lien's guess was 33,503,000 and the actual number of strokes reached by the dispenser was 31,869,067. According to Bobrick the dispenser part that finally required replacement was a coil cover costing six cents which was installed in a minute and a half.

Mr. Lien received a clock radio for his guesswork. He is a past president of the National Sanitary Supply Association.

★

"Tide" Vending Machines

A new size "Tide" package for sale through coin vending machines at coin-operated laundries was recently introduced by Procter & Gamble Co., Cincinnati. The new three and one third ounce package named "Tide 120's Coin-Vended Size" retails for 10 cents and will be sold in vending machines manufactured by Vend-Rite Manufacturing Co., 1536 North Halsted St., Chicago 22. Called the 120's vending machine because it has a capacity for one case containing 120 cartons of the new size "Tide," the machine has cadmium plated internal parts, a slug rejector, locked coin box, and is guaranteed for a year against mechanical failure. Two models are available, one with a standard base (see picture) and the other with a storage base for an additional case of the product. The bulk soap sales department of The Procter & Gamble Distributing Co., P. O. Box 599, Cincinnati 1, is handling sales of the product.

★

Hockwald Chemical Sold

Hockwald Chemical Co., San Francisco, manufacturer and distributor of sanitary supplies, was acquired last month by Hale Brothers Realty Co., also San Francisco. No changes in the company's management, policies, or personnel are contemplated at the present, according to a joint announcement of the acquisition made by S.S. Hockwald, a partner in the company, and Prentice C. Hale, president of Hale Brothers. The Hockwald concern has been managed for the past 10 years by Mr. Hockwald, his brother Lionel Hockwald, and Harold Berliner.

Coin vending machine holds 120 cartons of special size "Tide."

Health Info Bureau Set-up

A Home Health Information Bureau has been established by Lehn and Fink Products Corp.,

Robert F. Prindle

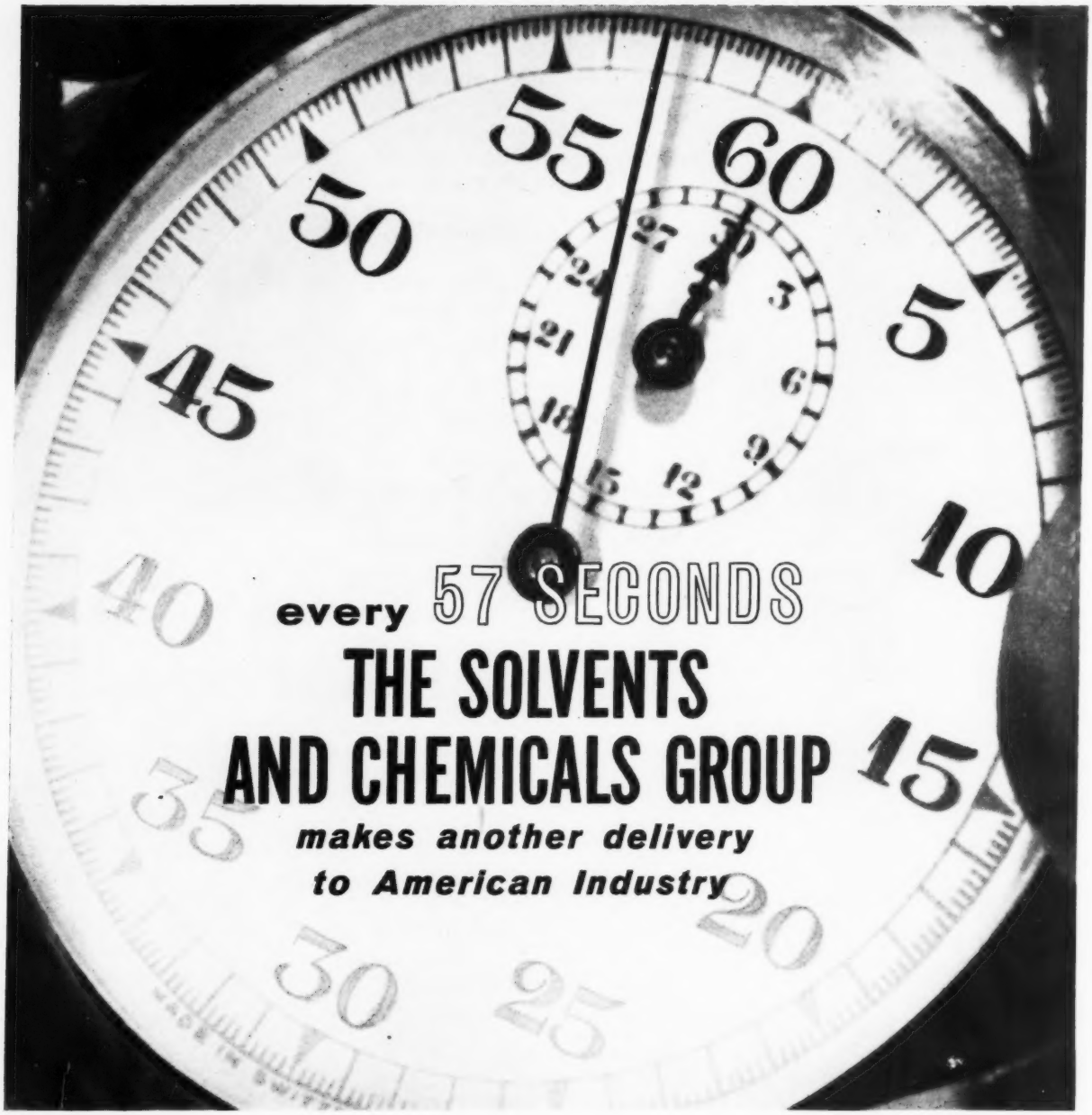
New York, under the sponsorship of its Lysol division, it was announced last month by Walter Plaut, president. The bureau will provide the latest information to the public about methods of fighting infection and disease in the home. Its director is Robert F. Prindle, who has been director of research for the company since 1954 on its line of proprietary drugs, cosmetics, and toiletries. Previously Dr. Prindle had been with Strong, Cobb and Co., Cleveland, for 11 years.

In announcing the formation of the bureau, Mr. Plaut noted the growing awareness of home health needs and compared today's situation with that of the early 1920's when the public had to be educated about the germ theory of disease and the important role of disinfection in combatting it. Recent problems of cross infection in hospitals, he added, have highlighted the need for the return to strict disinfection procedures. Overdependence on wonder drugs, Mr. Plaut stated, may have tended to obscure the value of disinfection.

★

Colgate Earnings Increase

Consolidated net income of Colgate-Palmolive Co., New York, for the first six months of this year was reported last month at $11,085,000, or $1.37 per common share,



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compared with $8,355,000, or $1.08 per share, in the comparable 1958 period. Consolidated sales reached a new record of $292,216,000 compared with $265,446,000 in the first half of last year. Consolidated earnings in the second quarter of 1959 amounted to $6,079,000, or 75 cents per share, compared with $3,935,000, or 51 cents last year.

—★—

Colgate Reassigns Leigh

Gilbert M. Leigh, formerly technical services manager, was recently named manager of the newly created pioneering research area of Colgate-Palmolive Co.'s corporate research department. This was announced by Dr. John R. Brown, Jr., vice-president for research and development.

Mr. Leigh assumes responsibility for the creation, integration and functioning of a project development section and a statistical planning and analysis section at Colgate's research laboratories in Jersey City, N. J.

The project development section studies new technical developments and new manufacturing processes which may bear on existing operations and on the company's program of diversification.

The statistical section applies statistical planning to the design of experiments and will analyze their results. In addition, it will work on information storing and computing systems on a long range basis.

Mr. Leigh also retains responsibility for the perfumery and essential oils section and the engineering materials section.

—★—

Purex Appoints Rich

Brett Rich has been named director of research for the Purex Corp., Ltd., South Gate, Calif., it was announced last month by Earl Davis, vice-president—manufacturing and research. Most recently production manager of the company's Manhattan division in Bristol, Pa., Mr. Rich joined the Purex research department in 1947.

Solvay Names Kishbaugh

The appointment of Herbert Kishbaugh as manager, New York sales branch, Solvay Process

Herbert Kishbaugh

division, Allied Chemical Corp., New York, was announced recently by Arthur Phillips, Jr., Solvay vice-president. Mr. Kishbaugh succeeds Fred H. Harris who retired after 34 years with Solvay.

Mr. Kishbaugh joined the division's advertising department in 1948 and was transferred to the Boston branch as a salesman the following year. He was assigned to the New York branch in 1954 and became its assistant manager last year.

—★—

Stauffer, Victor to Merge

An agreement in principle has been reached for the merger of Stauffer Chemical Co., New York, and Victor Chemical Works, Chicago, it was announced last month by August Kochs, chairman, and Rothe Weigel, president, of Victor, and Christian de Guigne chairman, and Hans Stauffer, president, of Stauffer. The agreement between the directors of the two companies is subject to stockholder approval.

The merger proposal provides for an exchange of one share of Stauffer common stock for each share of Victor common. Accordingly, Stauffer will issue approximately 1.7 million common shares in addition to the 7,242,670 of its shares currently outstanding.

Victor has extensive operations in phosphates and allied products which are said to complement Stauffer's position in basic industrial and agricultural chemicals. Sales of the combined enterprise for this year are expected to exceed $225 million.

Three of the current Victor directors will be added to the Stauffer board and the Victor organization will remain intact, with headquarters in Chicago. Victor will become the Victor Chemical Division of Stauffer with Mr. Weigel as president and general manager.

—★—

National Carbon Contest

National Carbon Co., division of Union Carbide Corp., New York, producers of "Prestone" anti-freeze, is holding its second national baseball contest this year for all owners and employees of retail establishments selling anti-freeze. First prize of $1,000 will be awarded to the contestant who predicts most accurately the final standings and number of games won by the 16 major league baseball teams. The contest, which closes Aug. 30th, ties in with the "Prestone" Anti-Freeze World Series Special, a network telecast the evening before the series opening.

—★—

Bristol Advances Frost

Donald S. Frost, vice-president—advertising for Bristol-Myers Products division of Bristol-Myers Co., New York, was advanced recently to vice-president—executive staff activities in the parent company. He is succeeded by Al Whittaker who was vice-president—market research in the products division.

—★—

New Michel Data Sheet

A data sheet was published last month by M. Michel and Co., 90 Broad St., New York 4, which lists the company's 19 varieties of "Cachalot" fatty alcohols. The sheet, which may be obtained from the firm, includes typical analyses for the fatty alcohols.

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Rumell Joins Shulton

The appointment of Raven Rumell as a sales supervisor for consumer products of the fine

Raven Rumell

chemicals division of Shulton, Inc., New York, was announced last month by William H. O'Brien, vice-president. In his new post Mr. Rumell is responsible for sales of consumer chemicals on the west coast and makes his headquarters in Los Angeles. Previously he was assistant to the general sales manager for the Los Angeles Soap Co.

★

McKesson Appoints Burgess

Walter M. Burgess has been named district manager of the northeast chemical district of McKesson & Robbins, Inc., New York, it was announced last month by F. Dean Hilderbrandt, vice-president of the company's chemical department. With McKesson since 1943, Mr. Burgess was formerly assistant district manager. The northeast district includes eastern New York, New Jersey, eastern Pennsylvania, and southwest Connecticut.

★

Horix Acquires Canning

Horix Manufacturing Co., Pittsburgh, Pa., early last month acquired Canning Machinery Co., Portland, Ore., manufacturers of "Camco" coolers, pasteurizers, sterilizers, and similar machinery for handling products packaged in glass and cans. The new line of equipment augments the Horix line of fillers and conveyors.

Production of "Camco" products continues in Portland under the direction of Frank B. Fairbanks, Jr., Horix vice-president, and sales are being directed through the Horix Pittsburgh office at 2601 Chartiers Ave. All machines now carry the Horix trade mark.

L. E. Tripp, former president of Canning Machinery, has been appointed west coast and mountain states agent for all Horix equipment.

★

Lever Trademark Appeal

An opposition brought by Lever Brothers Co. against an application of Thrift-D-Lux Cleaners, Inc. to register a service mark for dry cleaning and pressing services was dismissed recently in the U.S. Court of Customs and Patent Appeals. The opinion of the court was published in the *Official Gazette* of the Patent Office, May 5, 1959.

★

Fritzsche Office Moves

The Philadelphia office of Fritzsche Brothers, Inc., New York, essential oil and chemical firm, was moved early this month to 7 Wynnewood Road, Wynnewood, Pa. Telephone number of the new office is Trinity 8-7030. Previously the office was located at 12 South 12th St. in Philadelphia. James H. Shumaker, manager, and Robert Hughes represent the company in the Philadelphia area.

Helen E. Fairbanks, president of Horix Manufacturing Co., looks on as L. E. Tripp, president of Canning Machinery Co., signs agreement papers for the Horix acquisition of Canning.

Dow Appoints Matthews

The appointment of Frederick R. Matthews as manager of the silicone specialties division of

Frederick R. Matthews

Dow Corning Corp., Midland, Mich., was announced last month by W. R. Collings, president. In addition to his new responsibilities, Mr. Matthews continues as manager of the Greensboro, N. C., plant, and reports to A. William Rhodes, former manager of the division and a member of Dow Corning's management committee. Mr. Rhodes has been assigned new responsibilities for company planning and continues as manager of market research.

Dr. Collings also announced that management responsibility for the division has been transferred from Midland to Greensboro although silicone specialties sales and advertising activities remain at the Michigan location.

Louis A. Guglielmo, assistant to the manager of the division, has been transferred to Greensboro to continue his duties in product and market development and packaging.

★

Hold "Swing Party"

The annual "swing party" sponsored by the Par-Busters committee, golf auxiliary, Chicago Perfumery, Soap & Extract Association was held last month at the Rolling Green Country Club, Mt. Prospect, Ill. Besides golf, the event included prizes, luncheon, dinner, dancing, and bridge.

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Sample bottle of Procter & Gamble's "Mr. Clean" was distributed in the New York area recently in this doorknob bag which also contained premium coupons for other P&G products and literature about "Mr. Clean." Six ounce bottle was used.

New Laundry Detergent

A new controlled sudsing detergent for automatic laundry machines was introduced recently by S. & S. Soap Co., 815 East 135th St., New York 54. Called "Launderall," the product is said to be formulated to give maximum soil removal and whiteness retention to all washable clothes. The product, according to its maker, is a low foaming detergent, designed for commercial and institutional laundry use. "Launderall" is packaged in 25-pound bags and 25, 50, and 100 pound drums.

—★—

R. D. Webb Names Four

Four executive changes and appointments at R. D. Webb & Co., Cos Cob, Conn., essential oils firm, were announced last month by Richard Webb, president.

Wallace G. Brindise has been named general sales manager. Previously he was Chicago district manager. New comptroller for the company is John Yuiell, who was formerly with an accounting firm. Benjamin J. Jarvis, vice-president—sales, is now vice-president—production at the Linden, N. J., plant and A. Rolph Evans, who was in charge of manufacturing, has been appointed vice-president—research, development at the Linden labs.

—★—

Gulf Plant on Stream

Benzene, a basic raw material in detergents, insecticides, and a host of other specialties and industrial products, will be produced at the rate of 30 million gallons a year at a new plant of Gulf Oil Corp. Pittsburgh, Pa. Located at Gulf's Port Arthur, Tex., refinery, the facilities went on stream last month, and will also produce toluene. A major producer of ethylene, Gulf is diversifying its activity in the petrochemical field by entry into the production and marketing of high purity commercial benzene.

New Organic Acid

Availability of iso-decanoic acid (mixed isomers) in commercial quantities was announced last month by Union Carbide Chemicals Corp., 30 East 42nd Street, New York 17. Potential applications of the new acid or its derivatives are similar to those of coconut fatty acids (caprylic, capric, and lauric) and of tall oil derived fatty acids (pelargonic). Suggested uses include among others: detergents, fungicides, emulsifiers, corrosion inhibitors, oil additives, etc.

Carbide's new product is a complex mixture of methyl substituted, ten carbon, aliphatic, monocarboxylic acids having relatively little alpha substitution. Principal isomers are trimethylheptanoic and dimethyloctanoic acids.

The acid sells for 32 cents a pounds in tank car lots. Further product information is available from the manufacturer.

—★—

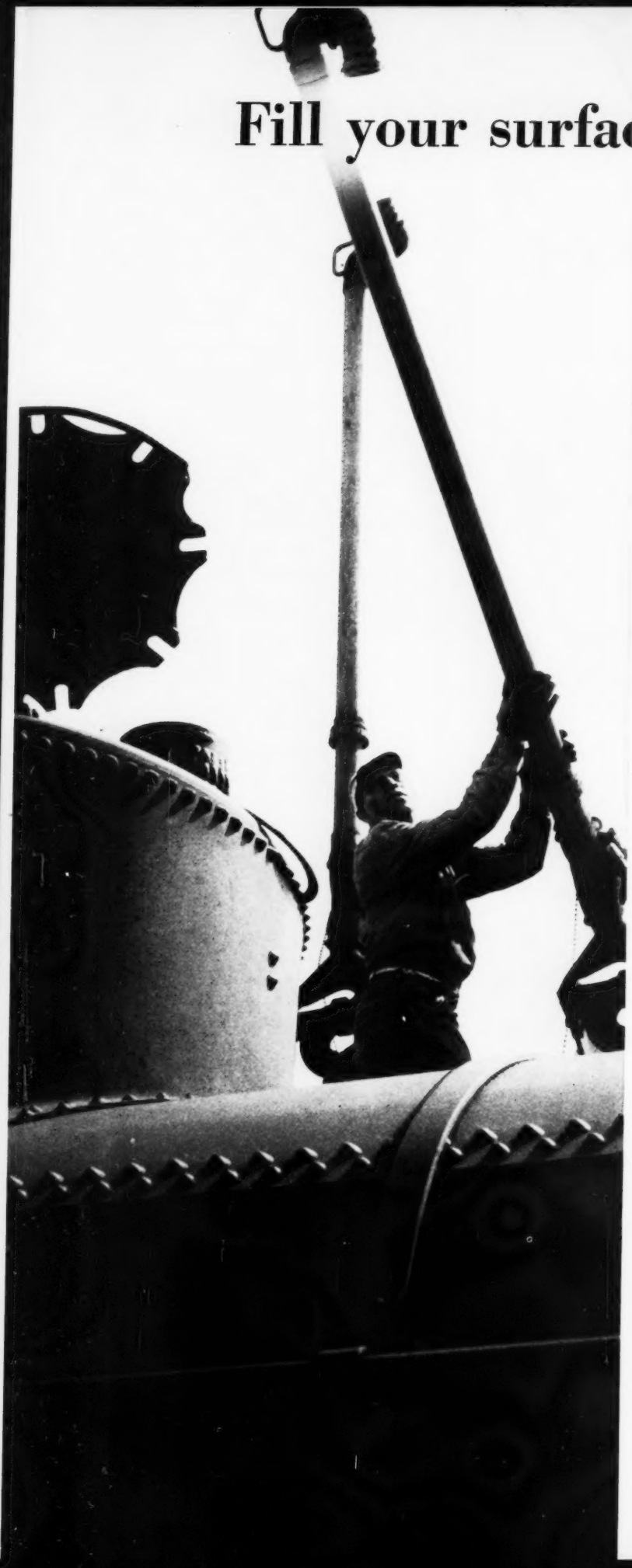
Minipump Changes Names

Minipump Corp., Phoenix, Ariz., has changed its corporate name to Minijector Corp., it was announced last month by E. F. Ziegler, president. The new name is designed to provide closer product identification with the firm's "Minijector" rinse injector and related injector lines. All officers of the company remain the same and no personnel or policy changes under the name change are contemplated. The firm, located at 6th and Buchanan Streets in Phoenix, also manufactures the "E-Z" line of water treatment injectors.

—★—

Hutchinson Joins Michigan

Robert M. Hutchinson has joined Michigan Chemical Corp., Saint Louis, Mich., as supervisor of costs, it was announced last month by R. J. Knapp, secretary-treasurer. Previously with the Detroit office of an accounting firm, Mr. Hutchinson received his certificate as a Certified Public Accountant in 1955.



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TERGITOL nonionics have proved effective in scouring, bleaching, and carbonizing compounds used by the textile industry. As detergents, they speed dishwashing, laundering, dry cleaning. They give good pigment dispersion, flow-out, and stability to latex paints. Metal cleaners, leather dressings, silicone preparations, shampoos, adhesives, bactericides—all can be improved with TERGITOL nonionics.

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NP-27	20
TP-9	51-56
NPX	60-65
NP-35	90-95
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XD	60-65
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UNION CARBIDE CHEMICALS COMPANY

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Emery Advances Six

Six advancements among its research personnel were announced recently by Emery Industries, Inc., Cincinnati.

Charles G. Goebel was named research director and Victor J. Muckerheide becomes technical co-odinator. Mr. Muckerheide is succeeded by Karl T. Zilch as manager of the process research section. Other appointments include: Louis M. Wise as manager of the Sanitone research section; H. Fred Oehlschlaeger as manager of the derivatives research section; and Fred O. Barrett as manager of the polymerization research section. The latter two sections both newly created, divide the activities of the former organic chemicals research section.

Dr. Goebel is the discoverer of the company's process for producing dimer acid by the thermal polymerization of unsaturated fatty acids. In his new post he manages Emery's research activities on fatty acids and their derivatives and the dry cleaning research carried on by the Sanitone research section.

With the company for the past 30 years, Mr. Muckerheide was manager of the process research section since 1953. As technical co-ordinator he is responsible for the recruiting of technical personnel and the coordination of research projects and facilities.

C. G. Goebel

V. J. Muckerheide

K. T. Zilch

Dr. Zilch joined Emery in 1955 and is now responsible for establishing and improving plant procedures for all the company's products including fatty acids and esters, lubricant esters for jet engines, and plasticizers.

A group leader since 1956, Dr. Wise now directs the Sanitone research program which includes both the development of improved dry cleaning compounds and the testing of dry cleaning systems.

Dr. Oehlschlaeger went with the company in 1951. The new derivatives research section, which he now heads, investigates non-polymeric derivaties of fatty acids, azelaic acid, and pelargonic acid, and other basic raw materials produced by Emery.

L. M. Wise

H. F. Oehlschlaeger

F. O. Barrett

As head of the new polymerization research section, Dr. Barrett conducts investigations of polymerization and polymers. With Emery for the past 11 years, he most recently served as head of the polymerization group.

—★—

Armour Division in Merger

The merger of Hess Products, Ltd., London, England, with the chemical division of Armour Chemical Industries, Ltd., also of London, was announced last month by William Wood Prince, president of Armour and Co., Chicago. The new company is known as Armour Hess Chemicals, Ltd., with half the share capital controlled by Armour and the other half by United Kingdom interests.

Hess Products was formed in 1956 and acquired patent rights from Armour for the fractional distillation of fatty acids. It has established itself in this field under the tradename "Distec." Since 1956 the company also has manufactured the bulk of industrial chemicals sold by Armour Chemical Industries. These chemicals are mainly cationic nitrogen derivatives of fatty acids.

—★—

Victor to Build Plant

A new plant for the manufacture of bulk industrial and agricultural chemicals will be under construction soon in Chicago for Victor Chemical Works of that city, it was announced recently by Rothe Weigel, president. First unit of the plant will be a phosphoric acid manufacturing facility scheduled for completion by the end of this year. Facilities for making phosphates for the detergent, chemical, and food industries, will be completed as the second phase of the construction. The new plant, located on a 35-acre waterway site, is Victor's ninth manufacturing operation. Although the company has had its headquarters in Chicago since its founding in 1896, the new plant is its first manufacturing unit to be located there. Victor was merged recently with Stauffer Chemical Co., New York.

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New Type Bleach

(*From Page* 146)

Another bleach containing "Oxone" is said to restore whiteness to nylon and other synthetic fibers. It may also be used in washing machines to prevent discoloration of white nylon.

About one third of a cup of nylon bleach to a gallon of hot water is the suggested use concentration. The discolored fabric should be soaked in the solution for an hour, rinsed by hand, then laundered thoroughly either by hand or machine.

Novel Soap Process

(*From Page* 141)

separators for the washing section are designated as S1, S2, and S3 respectively.

The completely washed soap leaving the washing section then enters the fitting section. After reaching phase equilibrium for the fitting in columns K5a and b, the fitted neat soap is separated from the nigre in the Hermetic centrifuge designated as S4.

The fitted neat soap then may go to the additive section designated as column K6 where the soap may be mixed with certain fillers.

As mentioned, this process is continuously operated under automatic constant-composition control under air-free hermetic conditions. This is accomplished by utilizing Hermetic pressure centrifuges for all separation in the various stages. The centrifuge used is of the type shown in Figure 7. (4) The material to be separated enters the bowl through the hollow spindle. At the inlet to this hollow spindle is a special feed pump mounted directly on the spindle. By means of this built-in pump, the material is forced to the separating zone of the centrifuge bowl. Here separation of the light component (soap) from the heavy component (spent lye or nigre, depending on the stage) occurs. These components then flow to the next respective processing stage without any need of intermediate booster pumps.

A view of a "Centripure" soap making plant is shown in Figure 8. As may be seen, the entire operation is easily controlled from one instrument panel. Due to automatic controls, compact stages and high capacity Hermetic centrifuges the entire plant can be run by one operator.

Summary

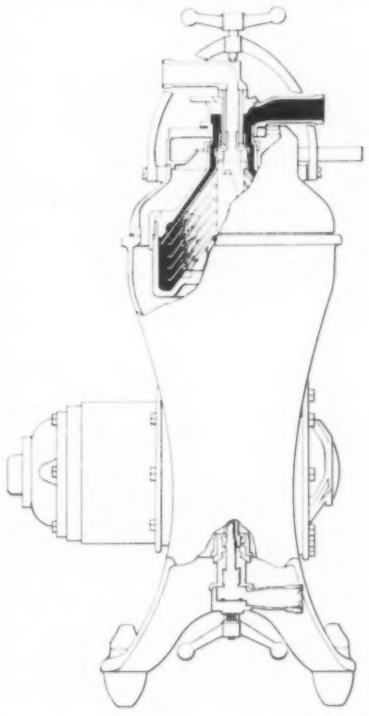
A new continuous process for the manufacture of soap is described detailing the three main operations in soapmaking; that is saponification, washing, and fitting.

In the new process, all operations involved in the production of soap are carried out in a hermetically closed system. The amounts of lye necessary for the saponification as well as of brine for the washing and fitting operations are regulated by the automatic constant-composition control system which eliminates the older method of control of the soapmaking process by cumbersome chemical analyses.

The process is based on the use of the Hermetic separator, a centrifuge of special design which allows the regulation of the separation efficiency during operation and which prevents any admixture or contact of the soap with air and, consequently, also any oxidation of the product during processing.

All types of soap, high grade toilet soap as well as laundry soap and industrial soaps, can be produced by this process which is characterized by high flexibility, low operating costs, and a high quality of the finished product.★★

Figure 7. Type of centrifuge used.



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★

Colgate Names Schurman

Jack V. Schurman, chemical research manager in the corporate research department of Colgate-Palmolive Co., New York, has assumed the responsibilities of supervising the activities of the analytical and instruments section in addition to the basic chemical research section at the company's research laboratories in Jersey City, N. J. Announcement of Mr. Schurman's new duties was made by John R. Brown, Jr., vice-president for research and development, who also made known that Morton B. Epstein was appointed head of the basic chemical research section to assist Mr. Schurman.

With Colgate since 1950, Mr. Schurman became manager of the basic chemical research section in 1957.

Dr. Epstein joined the company's research staff in 1949. He left in 1954 to head applications research at Onyx Oil and Chemical Co., Jersey City, N. J., and rejoined Colgate three years later.

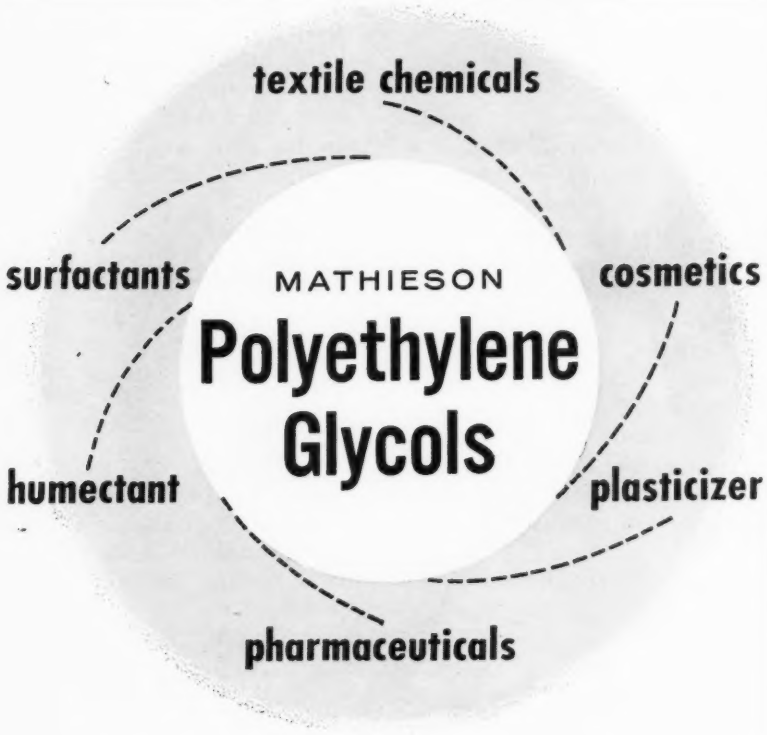
Pyrethrum Reprints

Reprints of Technical Information Memorandum No. 4, dealing with pyrethrum insecticides, issued earlier this year by the Armed Forces Pest Control Board, are being distributed by Charles Hurd Associates, 1120 Park Ave., New York 28, N. Y. The reprints, in the form of a booklet 4⅛ x 8⅞ inches, are being distributed on behalf of the pyrethrum growers of British East Africa and the Belgian Congo.

—★—

Time Chemical Moves

Time Chemical, Inc., moved its offices and factory last month to a new 43,000 square foot building at 3950 S. Karlov Ave., Chicago 32. The company formerly was located at 4344 S. Wolcott Ave. in Chicago. Its telephone number is Virginia 7-7925.



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Allied Salesmen Reassigned

Three sales representatives in the National Aniline division of Allied Chemical Corp., New York, have been assigned to new territories, it was announced recently by Harold L. Rieg, director of branch operations. Carl H. Ludders has been transferred from the New York branch office to the western New York sales area with headquarters in Buffalo. He joined the division in 1936.

In Pennsylvania, J. William Kirk was transferred as divisional sales representative from Philadelphia to the Pittsburgh area and covers the western part of the state and northern West Virginia.

H. Dorn Stewart, Jr., has been appointed divisional sales representative in north central Pennsylvania and makes his headquarters in Reading. He joined the division last year.

—★—

CACA to Meet Sept. 20-23

The Canadian Agricultural Chemicals Association, Montreal, Que., will hold its seventh annual meeting and conference Sept. 20-23 at the Chateau Frontenac, Quebec City, it was announced last month by J. K. Brown, Green Cross Products, and Lucien Plante, Marquette Products, conference co-chairmen. Three days of business sessions, discussions, and seminars will be held for representatives of Canadian and U. S. firms which manufacture and distribute pesticides. Papers to be presented will deal with the present and future markets in Quebec Province for pesticides.

—★—

Heads Hercules Subsidiary

Warren F. Beasley was elected president and a director last month of Corbu Industrial, S.A., Mexico City, a subsidiary of Hercules Powder Co., Wilmington, Del. Manager of engineering for the company's naval stores department since 1949, Mr. Beasley succeeds Paul Mayfield. Mr. Beasley joined Hercules in its engineering department in 1929.

In New Natl. Labs Post

The appointment of Norman W. Jennings as marketing administrator of National Laboratories, Inc., Toledo, was announced recently by M. E. Peck, president. In his new position, Mr. Jennings will direct market research and analysis, and be in charge of distributor relations, sales promotion and education.

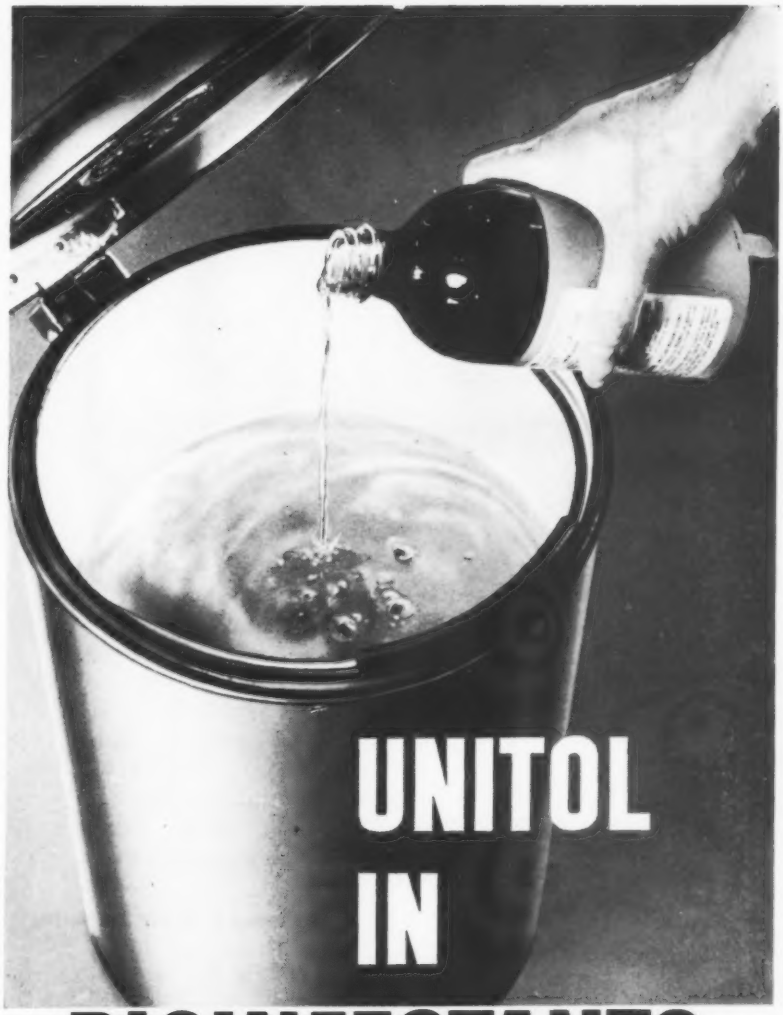
Norman W. Jennings

★

Allied Executives Shift

Changes at the top executive level, with the chairman now designated as the chief executive officer, were announced last month by Allied Chemical Corp., New York. Previously, the president had been the chief executive officer. The changes become effective in September when Glen B. Miller, president, reaches retirement age.

Kerby H. Fisk will be chairman and chief executive officer. He is chairman of the board and of the executive committee. New chairman of the executive committee and chief administrative officer will be Harry S. Ferguson, who is currently executive vice-president and a member of the executive committee. Chester M. Brown will be president and chief operating officer. Presently he is a vice-president of the corporation and president of the National Aniline division, and formerly was president of the General Chemical division.



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As Reader Sees It

(*From Page* 39)

cación con el mismo, ya que los datos que poseemos son insuficientes.

Agradeciendo desde ya la atención que se sirvan dispensar a nuestro pedido, saludamos a Uds. muy atte.-

Industrias del Valle S.A.I.C.
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Argentina.

Our linguist tells us that the guy says he read the article on the "Chemithon" continuous solfonation plant in the April issue of *Soap & Chemical Specialties* and has looked all over for the maker's address. If any other of our readers have the same problem we'll be glad to help them settle it. Chemithon Corp., 5430 W. Marginal Way, Seattle 7, Wash. is the maker. Ed.

—★—

Third "Beautyrama"

The third annual "Beautyrama" sponsored by the "Philadelphia Inquirer" has been scheduled for the Grand Ballroom of Philadelphia's Sheraton Hotel on Sept. 9-11. Many cosmetic and perfume firms have planned exhibits.

—★—

Literature from Vanderbilt

A number of new and revised technical bulletins have just been published by the specialties department of R. T. Vanderbilt Co., 230 Park Avenue, New York 17. "Veegum", a complex magnesium aluminum silicate, acts as an emulsion stabilizer and suspending agent, as a thickener, binder and as a modifier of organic gums. Its uses includes among others formulation of household chemical specialties, automotive polishes, abrasives, and cosmetic specialties. "Veegum's" properties and uses are covered in revised bulletins No. 29 and 53 and in new bulletin No. 539.

"Darvan" dispensing agents are complex polymerized organic salts of sulfonic acids of the alkylaryl type. Descriptive and use information on this group of products is supplied in revised bulletin No. 59 and in bulletin 13. They are suggested for application in

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Compatibilities of Vanderbilt diluents "Pyrax ABB" and "Continental Clay" with individual agricultural toxicants are tabulated in bulletin No. 19.

PVP In Specialties

(*From Page* 54)

a fraction of the market potential for PVP has been realized to date. PVP has its foot in many doors, but undoubtedly new and unpredicted uses for this polymer will be found. For the immediate future, we can see expanding markets in the cosmetic, pharmaceutical, beverage, and textile fields.

In applications closer to the interests of detergent and chemical specialties we feel that PVP has real potential. Its complexing effect on various chemicals, particularly the phenolic types, can be exploited to reduce the dermatological hazards of various compounded specialties which come in contact with the skin. Its film forming properties may be utilized in the water-soluble package field. Its suspending and protective colloid properties should find application in special finish fabric detergents.

At this point a comment should be interjected regarding vinyl-pyrrolidone. This monomer presents a building block for copolymers and a means of incorporating some of the desirable properties associated with PVP into new and unique resins. The fact that it may be copolymerized with a wide variety of monomers is significant. General Aniline is now marketing a series of vinylpyrrolidone-vinyl acetate copolymers. Others are in the development stage.

Looking ahead, the exciting aspect of PVP and vinyl pyrrolidone copolymers is that their potential applications are so varied and are not limited to aqueous systems. This is a true measure of versatility.

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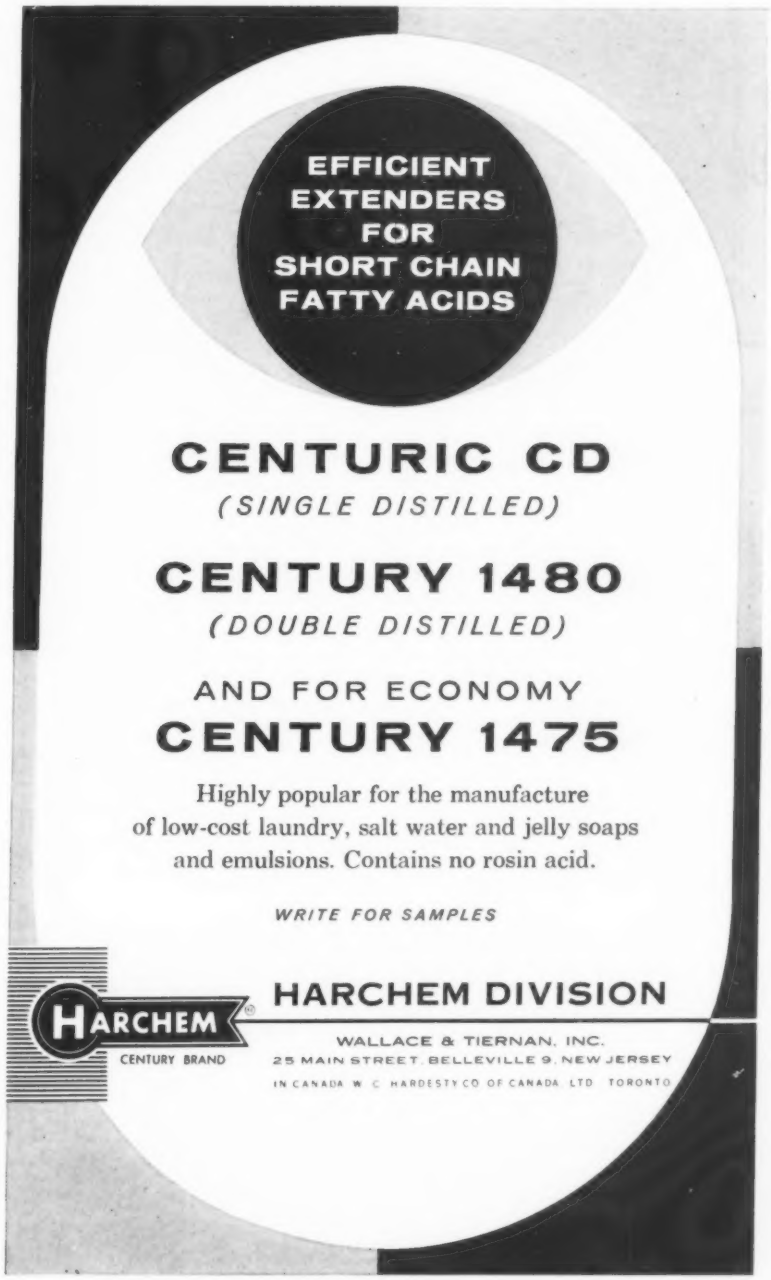
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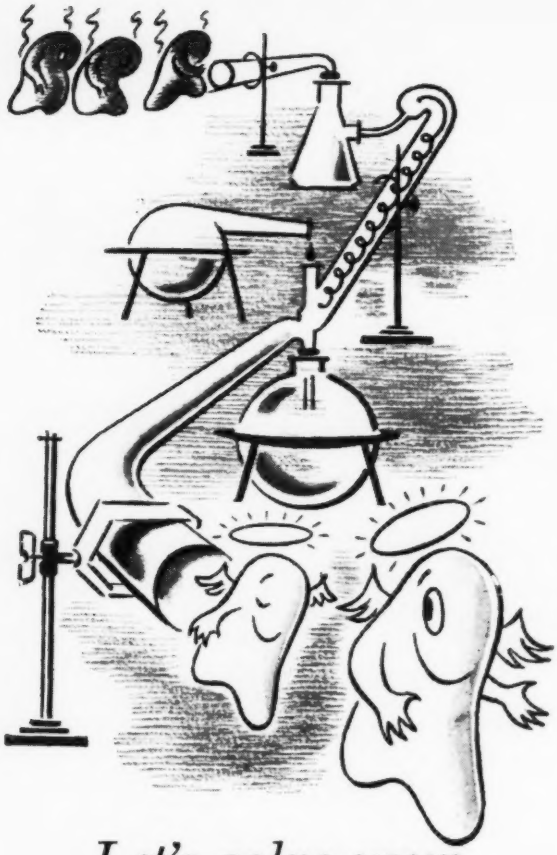

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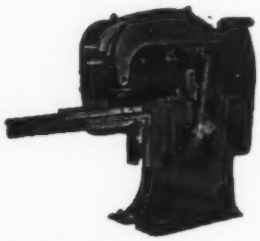

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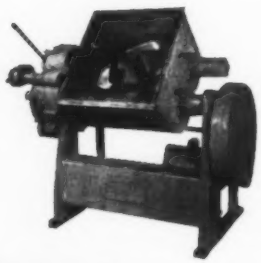

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Sales Representative: Man with more than 20 years experience in soap and specialty field available for sales or management position. Have good contacts in middle west but am willing to relocate if position warrants moving residence. Address Box 303, c/o *Soap.*

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For Sale: By I. E. Newman, 818 W. Superior, Chicago, Ill., CH-3-1425. Mixers: Marion-Munson, sizes 50# to 10,000# Crutchers—1,000-8,000#; Wrapper Type S; Auto Cutting Table; Bucket Elevators, Mills, Cutters, Crushers, Soap Equipment. Prices on request.

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—★—

Aerosol Sterilant

Pressure packaged ethylene oxide, a powerful sterilizing agent, may have a greater market potential than any of the current aerosol products, according to a recent release from the U. S. Department of Agriculture. Present applications of ethylene oxide in aerosol form include sterilization of heat sensitive plastic surfaces in hospitals. It is used in the destruction of unwanted bacterial spores during the manufacture of penicillin and to sterilize drugs and drug containers. Among the potential and suggested uses of ethylene oxide in this form are: control of diseases in beehives, control of insects and other destructive organisms in stored grain, and of staphylococcus infections in hospitals. Hotels are investigating its use for sterilizing bedding and furniture in gas tight rooms and operators of skating rinks and swimming pools see a use for ethylene oxide aerosols in sterilizing rental shoe skates and swim suits.

According to USDA's Robert A. Fulton, ethylene oxide has killed every virus or bacterium against which it has been tested. It does not leave a residue and is effective at temperatures ranging from about 70°F to 140°F. On one occasion it was used to sterilize a commercial airliner in which a container of live polio virus had been broken, USDA reports.

The safe handling in aerosol form of the otherwise highly flammable ethylene oxide was developed by Dr. Fulton and other Agricultural Research Service scientists under the contract to the Army. The latter was in need of a sterilant other than heat for photographic films and other sensitive materials.

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U. S. Department of Agriculture year-old wheat sample in jar at left has been treated with pressure packaged ethylene oxide.

New Magee Sealer

A new sealer and undercoater for use on asphalt tile floors was developed recently by Magee Chemical Co., 382 West Main St., Bensenville, Ill. Tradenamed "Lastex," the new product is said to form a seal and base for any wax or flexible film finish. It is claimed to be non-flammable; easily applied without streaking or need of buffing; non-yellowing and non-discoloring; and may be removed with a mild alkali. Complete information about "Lastex" may be obtained from Magee.

—★—

Monsanto Adds to ACL Line

Monsanto Chemical Co., Saint Louis, recently announced the addition of a fourth product to its ACL line of chlorinated cyanuric acids. "ACL-59," the potassium salt of dichloro-isocyanuric acid, is said to be the most flexible of this group of dry bleach and sanitizing materials. It is intended for incorporation in machine dishwashing products, chlorine scouring powders, industrial sanitizers, and dry bleaches for home and commercial use.

In addition to high solubility and rapid rate of solution, "ACL-59" is claimed to offer exceptional stability and longer shelf life of the finished product. It is said to be odor free and to have a wide range of compatibility with other ingredients, making for ease of formulation.

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COMING MEETINGS

Aerosol Clinics (sponsored by Aerosol Division of CSMA), New York City, Oct. 17, Hotel McAlpin. Chicago, Oct. 24, Hotel La Salle.

American Chemical Society, national meeting, Atlantic City, N. J., Sept. 13-18.

American Oil Chemists Society, annual meeting, Statler Hilton Hotel, Los Angeles, Sept. 28-30; spring meeting, Baker Hotel, Dallas, April 4-6, 1960.

Association of American Soap & Glycerine Producers, 33rd annual convention, Waldorf-Astoria Hotel, New York, Jan. 20-22.

Canadian Manufacturers of Chemical Specialties, second annual meeting, Royal York Hotel, Toronto, Nov. 2-4.

Chemical Specialties Manufacturers Association, 46th annual meeting, Mayflower Hotel, Washington, D. C., Dec. 7-9; 46th midyear meeting Drake Hotel, Chicago, May 16-18.

Drug, Chemical & Allied Trades Section, 69th annual meeting, Sagamore Hotel, Bolton Landing, Lake George, N. Y., Sept. 17-20.

Industrial & Building Sanitation - Maintenance Show and Conference, N. Y. Trade Show Building and New Yorker Hotel, New York, Sept. 22-24.

National Agricultural Chemicals Association, 26th annual meeting, French Lick - Sheraton Hotel, French Lick, Ind., Oct. 21-23.

National Hotel Exposition, 44th annual show, Coliseum, New York, Nov. 2-6.

National Packaging Show, Convention Hall, Atlantic City, N. J., April 4-8, 1960.

National Pest Control Association, annual convention, Biloxi, Miss., Oct. 19-22.

National Sanitary Supply Assn. 37th annual convention, Fountainebleau Hotel, Miami, Fla., May 22-25, 1960.

Packaging Institute, 21st annual forum, Statler Hotel, New York, Nov. 17-19.

Packaging Machinery Manufacturers Institute, show, Coliseum, New York, Nov. 17-20.

Society of Cosmetic Chemists, New York Chapter, monthly meetings, New Yorker Hotel, Sept. 9, Oct. 7, Nov. 4.

Synthetic Organic Chemical Manufacturers Association, monthly luncheon meetings, Roosevelt Hotel, New York, Sept. 15; Oct. 13; Nov. 4; and Dec. 2.

Toilet Goods Association, scientific section, Waldorf-Astoria Hotel, New York, Dec. 1, 1959; May 11, 1960. 25th annual meeting, Poland Springs House, Poland Springs, Me., June 27-29, 1960.

Western Packaging & Materials Handling Exposition, Civic Auditorium, San Francisco, Aug. 11, 12 & 13.

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Tale Ends

NOT so long ago, our roving reporter dropped into the office of the president of one of our larger eastern soap companies. The morning mail remained untouched while the gentleman calmly perused the pages of The Racing Form. Seems like top brass in the soap business sort of go for horse racing. Isn't the board chairman of our largest soapmaker reputed to put a buck or two on a nag's nose now and again? And we know two heads of smaller soap firms who like to risk their dough on a race horse's chances. Maybe there's something about the soap business. . . .

* * * * *

Just heard that Herb Kranich, president of the Kranich Soap Co. of Brooklyn, and fiery petrel of the potash soap business a decade ago, had a heart attack 6-8 months ago and was laid up in the hospital for quite a stretch. He has recovered nicely and is now back on the job at his plant regularly, although reported taking it a lot easier. Tough cookies, these Kranichs!

* * * * *

Chicago is top dog in can manufacture. Last year, some 29% of the nation's 41.5 billion cans were made in the five-state area surrounding Chicago, recently said a release from American Can. The five states, Illinois, Indiana, Michigan, Wisconsin and Ohio, showed a gain of 475 million cans in 1958.

* * * * *

Soap deals in Canada are even more profuse than in the U.S.,—if that's possible, reports a soap salesman friend who has just returned from our northern neighbor. Being especially heavily promoted are such liquid household cleaners as "Mr. Clean" and "Jim Dandy", Lever's Canadian version of "Handy Andy." "Lestoil" has not invaded the Canadian market, according to our scout.

* * * * *

A novel spot to run a field test on carpeting is a railroad station. Nevertheless, Allied Chemical has picked a section of the busy main arcade of Pennsylvania Station in New York City to test the wearing qualities of four different types of fibres. Methods and products for on-location cleaning are also being tested to determine the best way to bring back pile. Service Master, Inc., is doing the cleaning job.

* * * * *

The current craze of dehydrated Americans to own their own swimming pools is giving some chemical specialties quite a shot in the arm, according to the latest issues of Columbia Southern's handsome house magazine. Sanitizers, disinfectants, cleaners and algaecides are the chemical specialties benefitting most from the growing sales of both the permanent and "above ground" types of pools. An estimated 120,000 plastic pools ranging up to 30 feet in diameter and 24 inches deep will be sold this year, according to Columbia Southern's figures. Add another 62,000 pools of the permanent type to be built this year, and you have quite a market for expendable chemicals for pool maintenance.

* * * * *

A bottle of bathroom cleaner allegedly exploded in the face of a Minooka, Ill. housewife two years ago. Recently she filed suit in Circuit Court of Illinois asking $1,220,000 damages. The suit states that the woman was temporarily blinded and permanently scarred as a result of the explosion and her husband was overcome by the fumes. Even granted that the contention of the woman is correct, the amount of damages asked is obviously excessive. It is our feeling that law suits of this kind which ask for obviously ridiculous damages should be thrown out of court.

* * * * *

H. Benny Markowitz is the new president of the Wolf Creek Soap Co., Dayton, Ohio. He recently purchased the company which has been a manufacturer of fine toilet soaps for many years. Reports indicate that Mr. Markowitz also plans to acquire other small soap companies with a view to running a combined operation. Other soap companies have been approached by him with the idea of selling out.

* * * * *

A prominent gin rummy player from Niagara Falls, N. Y., who modestly admits that he is probably the most scientific gin player in the chemical industry, recently visited N. Y. and its environs, including parts of N. J. In the course of four or five sessions of gin, this great expert was really "took." He failed to win one thin dime. In fact, rumor has it that he had to borrow a shirt to escape to the harbor of some good friends in New England where he licked his wounds at a small burg yclept Scituate, Mass. Ah, science!

* * *

Herbert F. Johnson, chairman of S. C. Johnson & Son, Racine, Wis., maker of waxes, polishes, aerosols, insect repellents, and cleaning compounds, is sort of the unofficial official delegate of the chemical specialties industry at the United States National Exhibition in Russia. He was among the U. S. visitors to the show, which opened July 24. Covering 400,000 squares feet, the exhibition is being held in Sokolniki Park in Moscow. Vice-president Nixon opened the show, which began appropriately during the observance in the U. S. of Captive Nations Week.

* * *

The maker shall remain unnamed, but there's an outfit planning to market an unperfumed detergent for washing barns, kennels, etc. Is it possible the detergent marketer found out that even animals are getting fed up with isobornyl acetate and other synthetic pine odors?

* * * * * *

Hazardous substances labeling — manufacturers can expect new federal legislation before the year end on this subject. Hearings were held on both the Senate and House bills, in Washington, August 10-12. The two bills, Magnuson and Roberts Bills, are the same. Both as they now stand meet with general approval of the chemical and allied manufacturers. Once the federal bills are passed, it will give the states a pattern for their own legislation. But a new labeling law for chemical specialties will be here soon. That's for sure.

Mr. and Mrs. James Varley, Sr., beam for the photographer. And why not? They're celebrating their golden wedding anniversary. Mr. Varley is the founder of James Varley & Sons, St. Louis chemical specialties manufacturing outfit, now headed by his son, Jack. The Varley's other son, James G. ("Little Jim") is vice-president in charge of sales. In addition the Varleys have 14 grandchildren and one great grandchild. Mr. Varley, a veteran of over 50 years in the chemical specialties business, began his career with Killgerm Chemical Co., England.

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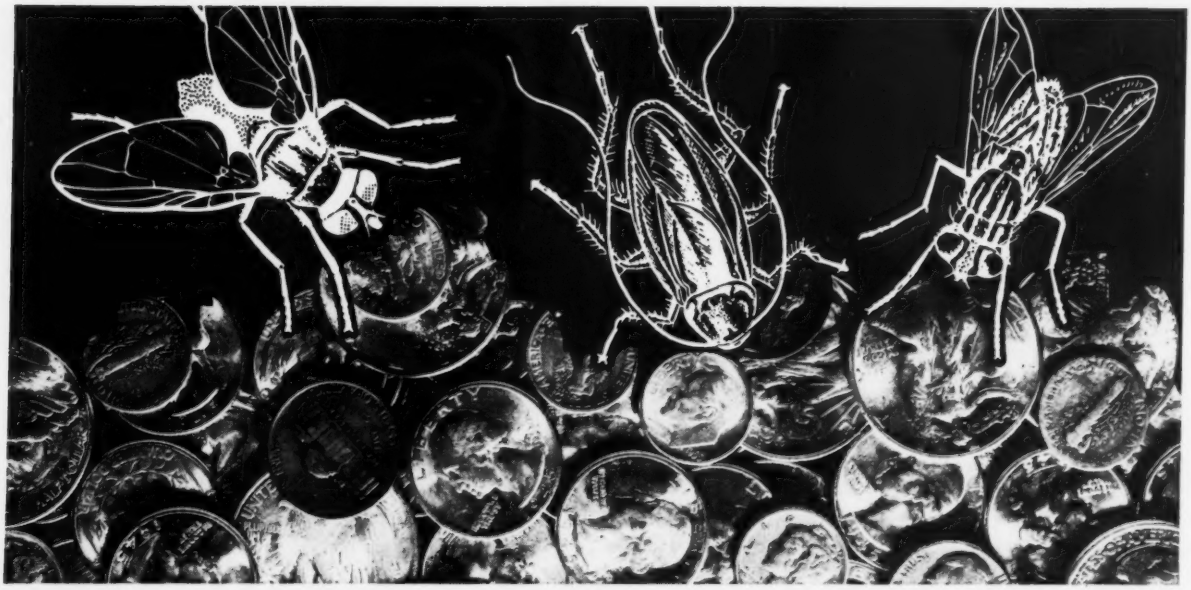
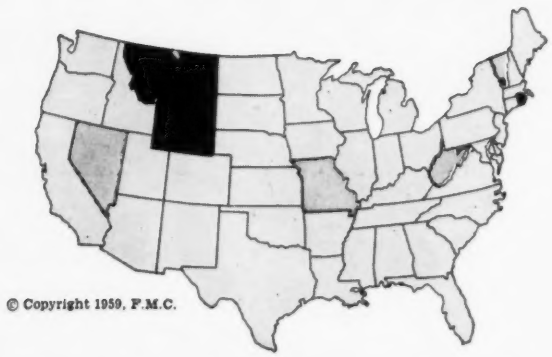


RESISTANT INSECTS EAT INTO SALES!

...don't blame your salesmen, the RESISTANT INSECT may be the culprit!



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FAIRFIELD CHEMICALS' First National Insect Resistance Survey

RESISTANT INSECT DISTRIBUTION

Insect Resistance | No Insect Resistance | States Unreported

(†) *Survey available upon request on your company letterhead.*

(°) *Reg. U. S. Pat. Off. FMC*

In a recent nationwide survey† leading Entomologists reported flies and roaches have "learned-to-live" with many widely used insecticides. Once powerful formulations no longer prove fully effective. Worse, each new insect generation becomes more and more immune.

If your insecticide sales have slumped, blame the resistant insect! It's time to take 'him' seriously. The survey showed that formulations with PYRENONE° offered long range effectiveness and high killing power, are non-toxic to humans and warm blood animals. Pyrenone, a combination of pyrethrins and piperonyl butoxide, proved to be the safest, surest, most economical insecticide base. It's time to put performance... *and profits, naturally*... back into your insecticides. Reformulate with Pyrenone.

KEEP YOUR INSECTICIDES MARKETABLE

- Periodically check insect resistance to your products.
- Tailor your formulations to meet specific needs.
- Prescribe proper application methods.
- Reformulate to include Pyrenone.

Let your Fairfield representative help solve your insecticide sales problem. Contact him today!

Pyrenone*

Putting Ideas to Work

FOOD MACHINERY AND CHEMICAL CORPORATION

Fairfield Chemicals

Sales Headquarters

441 LEXINGTON AVENUE, NEW YORK 17, N.Y.

Branches in principal cities. In Canada: Natural Products Corporation, Montreal and Toronto.

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